DxMONITOR

Animal Health Report

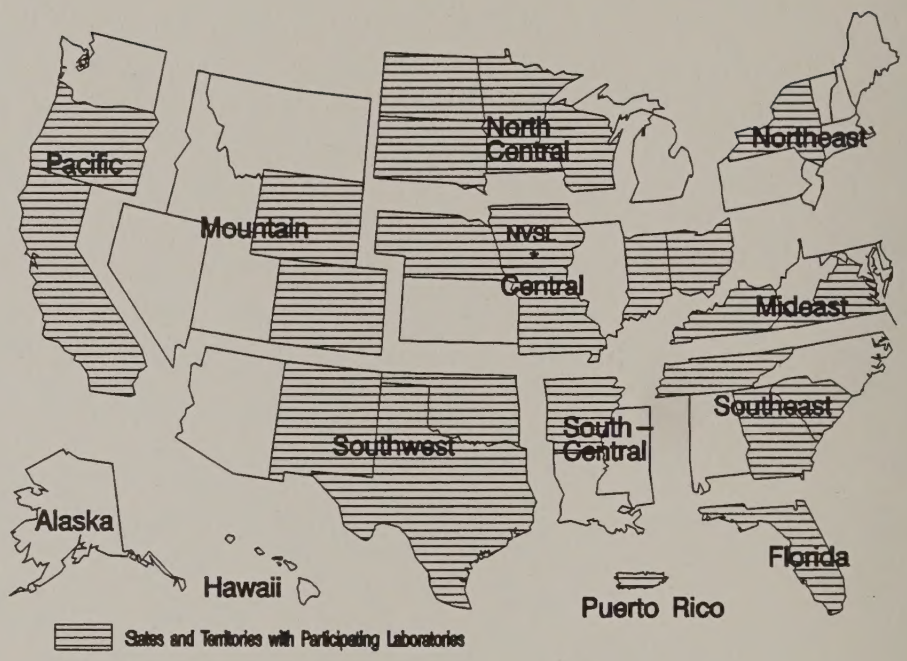
Inside this Issue

Winter 1994

REGIONS OF THE VDLRS

Abbreviations for regions used in this issue are:

AK = Alaska
CL = Central
FL = Florida
HI = Hawaii
ME = Mideast
MN = Mountain
NC = North-Central
NE = Northeast
PA = Pacific
PR = Puerto Rico & U.S. Virgin Islands
SC = South-Central
SE = Southeast
SW = Southwest
UNK = Unknown



Contributing Laboratories

The following laboratories have contributed data reported in the DxMONITOR Animal Health Report. Thanks to all of the individuals at these laboratories who have worked to make this report possible.

- Arkansas Livestock and Poultry Commission Diagnostic Laboratory (Little Rock, AR)
- California Veterinary Diagnostic Laboratory System (Davis, CA)
- Colorado Veterinary Diagnostic Laboratories, Colorado State University, (Fort Collins, CO)
- Bureau of Diagnostic Laboratories, Florida Department of Agriculture (Kissimmee, FL)
- Veterinary Diagnostic Laboratory, University of Georgia (Athens, GA)
- Veterinary Diagnostic and Investigational Laboratory, University of Georgia (Tifton, GA)
- Veterinary Diagnostic Laboratory, Iowa State University (Ames, IA)
- Animal Disease Diagnostic Laboratory, Purdue University (West Lafayette, IN)
- National Veterinary Services Laboratories (Ames, IA)
- Breathitt Veterinary Center, Murray State University (Hopkinsville, KY)
- Livestock Disease Diagnostic Center, University of Kentucky (Lexington, KY)
- Minnesota Veterinary Diagnostic Laboratory, University of Minnesota (St. Paul, MN)
- Veterinary Medical Diagnostic Laboratory, University of Missouri-Columbia (Columbia, MO)
- Veterinary Diagnostic Center, University of Nebraska-Lincoln (Lincoln, NE)
- Veterinary Diagnostic Services, New Mexico Department of Agriculture (Albuquerque, NM)
- New York State Veterinary Diagnostic Laboratory, Cornell University (Ithaca, NY)
- North Dakota Veterinary Diagnostic Laboratory, North Dakota State University (Fargo, ND)
- Reynoldsburg Laboratory, Ohio Department of Agriculture (Reynoldsburg, OH)
- Oklahoma Animal Disease Diagnostic Laboratory, Oklahoma State University (Stillwater, OK)
- Veterinary Diagnostic Laboratory, Oregon State University (Corvallis, OR)
- Puerto Rico Animal Diagnostic Laboratory (Dorado, PR)
- Clemson Diagnostic Laboratory, Clemson University (Columbia, SC)
- Animal Disease Research and Diagnostic Laboratory, South Dakota State University (Brookings, SD)
- C.E. Kord Animal Disease Diagnostic Laboratory, Tennessee Department of Agriculture (Nashville, TN)
- Pan American Veterinary Laboratories, (Austin, TX)
- Texas Veterinary Medical Diagnostic Laboratory, Texas A&M University (College Station, TX)
- Bureau of Laboratory Services, Virginia Department of Agriculture and Consumer Services (Richmond, VA)
- Central Animal Health Laboratory, Wisconsin Dept. of Agriculture, Trade and Consumer Protection (Madison, WI).
- Wyoming State Veterinary Laboratory (Laramie, WY)

Lab Notes

This section presents short descriptions of current investigations, outbreaks, or events of potential interest to diagnostic laboratories. The purpose is to provide a forum for timely exchanges of information about veterinary diagnostic laboratory activities. Submissions from nonparticipating laboratories are welcome.

Bovine Viral Diarrhea (BVD) in Québec

In Québec, Canada, atypical BVD cases were reported during Fall 1992. The first isolates were confirmed at the Université du Québec, Institut Armand-Frappier Laboratory in the beginning of 1993. Clinical signs observed were similar to those described in the Summer 1994 DxMONITOR Animal Health Report: high mortality rate, high fever (106-107° F), anorexia, decreased milk production, diarrhea, respiratory signs, and death within 48 hours of onset. In 1993, a few cases of hemorrhagic syndrome were also observed. As illustrated in Table 1, the number of BVD cases was 141 in 1993, compared to 62 in 1992. While prior to 1993 most isolates were from digestive tract specimens, recent isolates are from respiratory tract samples and are mainly non-cytopathogenic (NCP). *Mycoplasma* spp. organisms were also often associated with these samples. Since March 1994, the situation appears to be returning to normal following application of a vaccination program, improved farm management, sanitary enforcement at auction parks, truck disinfection, etc.

Table 1.

Year	Isolates		NCP* Strains	
Quarter	Positive	Per Month	Number	Percent
1992				
1	15	5.0	4	26
2	9	3.0	2	22
3	17	5.5	4	23
4	21	7.0	13	62
Total	62	5.0	23	37
1993				
1	34	11.3	28	82
2	53	17.6	48	91
3	24	8.0	19	79
4	30	10.0	28	93
Total	141	12.0	123	87
1994				
1	41	17.0	34	83
2	17	5.6	14	82
3	11	3.6	6	55
Total	69	7.6	54	78

* NCP = Non-cytopathogenic isolates.

Last January, the Institut started a typing program of field isolates using monoclonal antibodies provided by Dr. David Paton (Central Veterinary, New Haw, United Kingdom). The genomic biotypes are classified as I and II, with both biotypes having cytopathic and noncytopathic activities. As shown in Table 2, for the first 8 months of 1994, they isolated 37 Type II and 32 Type I. Isolates from digestive tract specimens were more frequently Type I, while for pooled organs (mainly lungs, kidney, spleen, and liver), Type II isolates were more frequent. During this period, NCP isolates were predominant (54/69), but a few Type II isolates were cytopathogenic after two passages on cell cultures (calf testicles). The Type II isolates were obtained mainly from acute/peracute cases, and the clinical signs were more severe if antibody titer in the herd was absent or low.

Table 2.

Organ	BVD Isolates (January to August 1994)	
	Type I	Type II
Digestive tract	8	4
Respiratory tract	4	4
Sera	10	9
Fetus	2	3
Pooled organs	8	17
Total	32	37

Contact: Grégoire Marsolais, Claude Montpetit, Robert Asse, and Pierre Payment, Institut Armand-Frappier, Laval, Québec, Canada, (514) 687-5010.

Veterinary Diagnostic Laboratory

Reporting System (VDLRS) Continues to Grow

Welcome to the latest laboratory to join the VDLRS. The Diagnostic Laboratories, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, Colorado began contributing data for the current report. That brings the total number of participating laboratories to 29, including the National Veterinary Services Laboratories (NVSL). Last year at this time, there were 24 participating laboratories, and at this time in 1992, there were 20.

Rabies Outbreak in Florida

Between November 10 and December 1, 1994, seven adult hunting dogs died from clinical signs consistent with rabies. Five of the seven dogs were confirmed by Centers for Disease Control and Prevention (CDC) to have the canine rabies virus strain. This strain was previously found in the U.S. only in south Texas. Authorities believe the unvaccinated dogs were exposed to illegally imported rabid coyotes inside hunting pens. One of the seven dogs exposed 24 people and numerous other dogs and cats. The 24 people are currently undergoing post-exposure prophylactic treatment. The kennel and surrounding area are under quarantine. All other dogs and cats in the area are being vaccinated. Authorities are maintaining surveillance of all animal populations for additional cases.

Contact: Dr. Lisa Conti, Florida State Health Office, 1317 Winewood Blvd., Tallahassee, FL, (904) 921-4408.

I. Patterns of Selected Diseases

Section I contains information on diseases of interest as designated by List B of the Office International des Epizooties (OIE). The purpose of reporting these data is to monitor confirmed cases of specific diseases on a State-by-State or regional basis so that national distributions can be mapped and evaluated.

Key to Figures in this Section:

- **Deviation bar charts show the base 2 logarithmic transformation of the ratio of positive tests for the current quarter to the mean of positive tests for the previous 4 quarters. A value of '0' is equivalent to a ratio of 1, indicating no change compared to historical values. Each unit change indicates a doubling (positive change) or halving (negative change) of the present value compared to the mean of the historical values.**
- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region or State of specimen origin and quarter of the calendar year for specimen submission.**
- **Results reported with dates not corresponding to the current quarter are the result of different testing intervals or related to different reporting times.**
- **See map on inside front cover for regions.**

☐ Bovine Leukosis Virus (BLV)

Criteria: AGID or pathology.

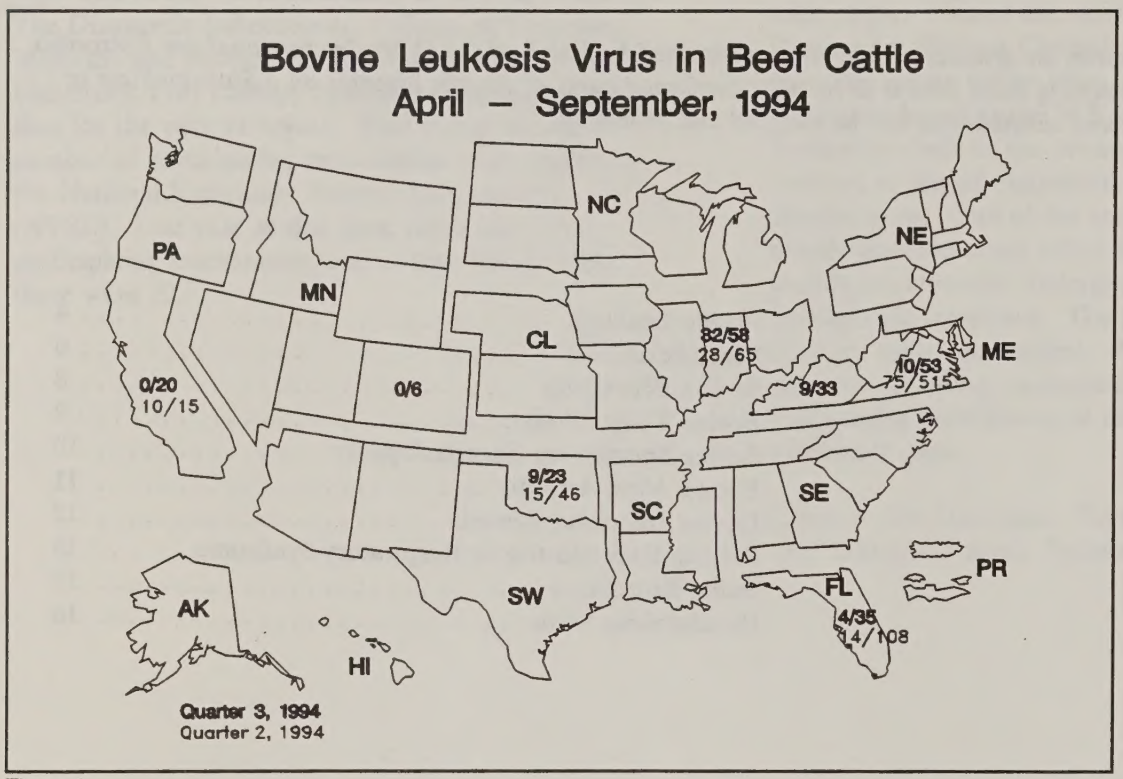


Figure 1

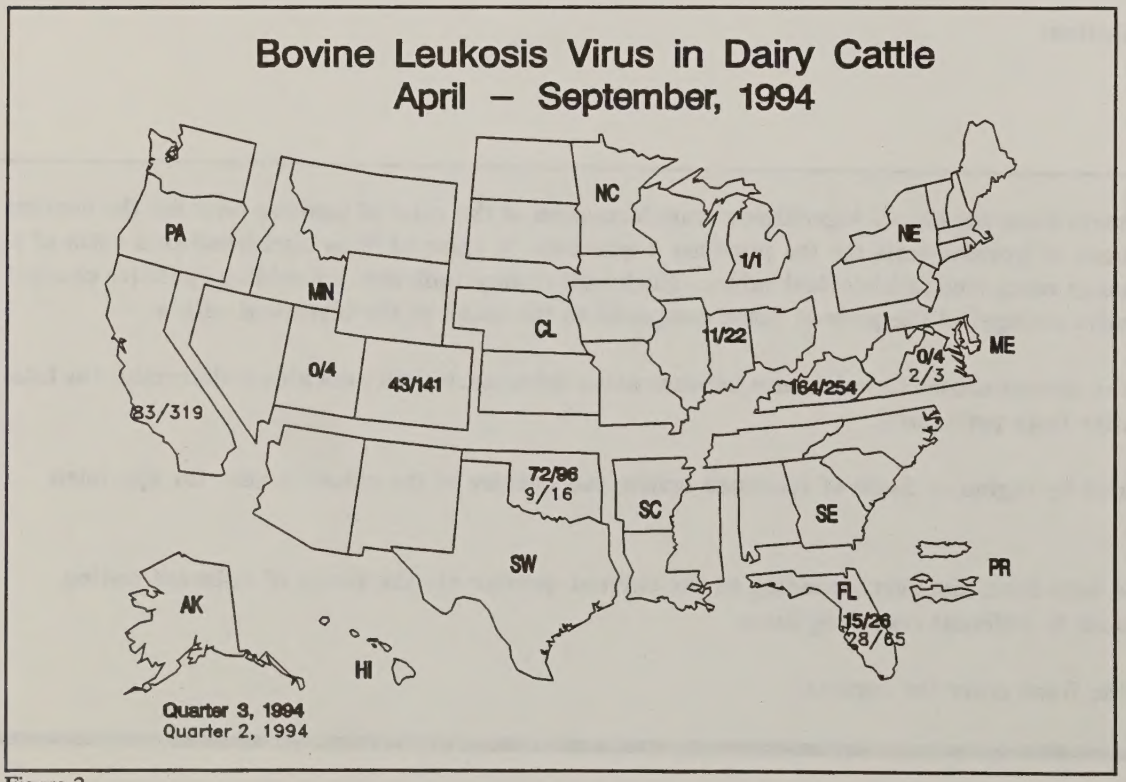


Figure 2

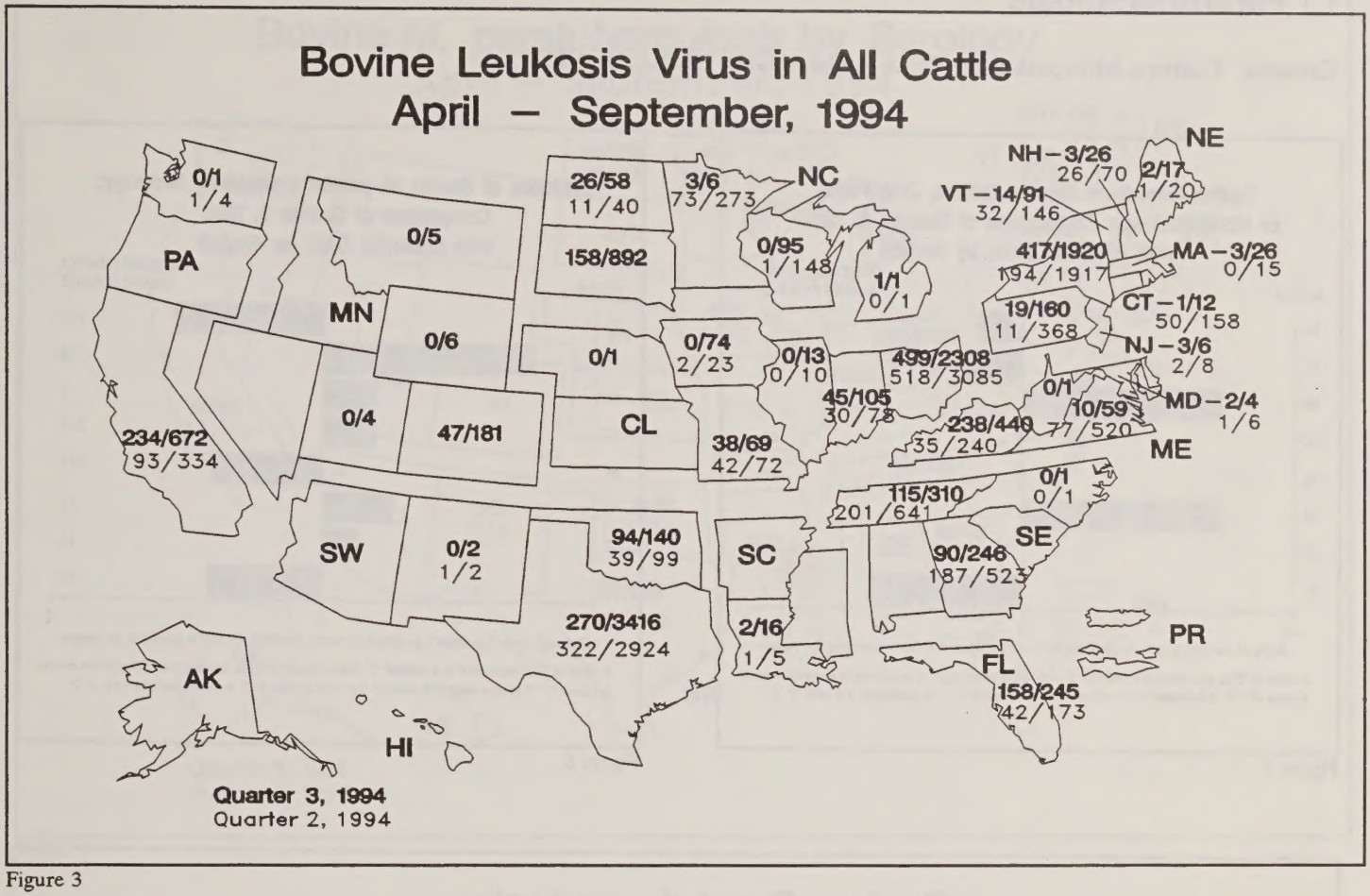


Figure 3

For the third quarter of 1994 (July through September), there were 2,492/11,629 (21.4 percent) positive tests for bovine leukosis virus (BLV) overall compared to 1,993/11,904 (16.7 percent) for the second quarter of 1994 and 1,687/7,741 (21.8 percent) for the third quarter of 1993. Figures 1 through 3 show the distribution of BLV test results for the second and third quarters of 1994 in beef, dairy, and all cattle by State. Figure 3 includes results where the class was unknown.

Of the results shown in Figure 3, only two States included results for histopathology or multiple tests. Georgia reported six positives for the third quarter of 1994, and North Dakota reported two positives for the same period. The remaining test results shown in Figure 3 and all results shown in Figures 1 and 2 were for AGID.

Figure 4 shows the ratio of total positives for the third quarter of 1994 compared to the average total positives for the previous year by region. The apparent increase in the Mountain region is primarily due to the fact that Colorado began reporting.

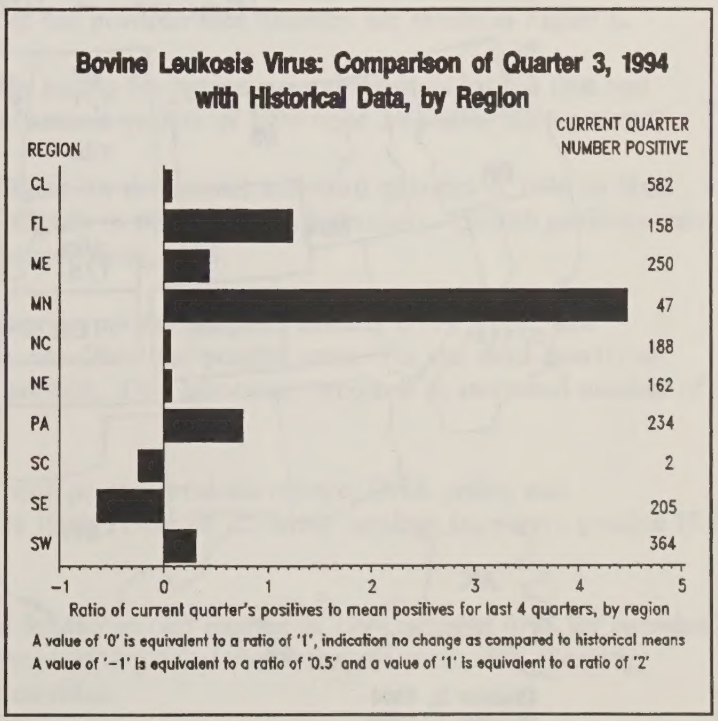


Figure 4

NOTE: States with no values are nonreporting States.

☐ Paratuberculosis

Criteria: Culture, histopathology, DNA probe, AGID, ELISA, or CF.

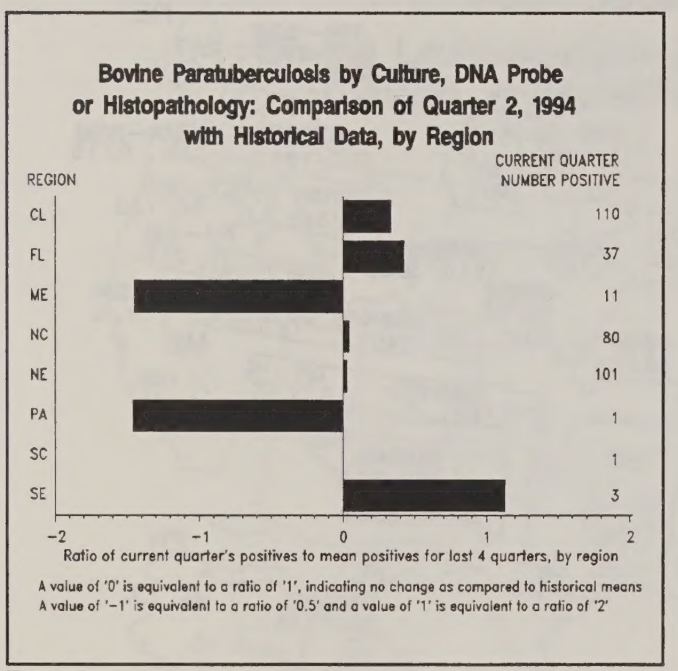


Figure 5

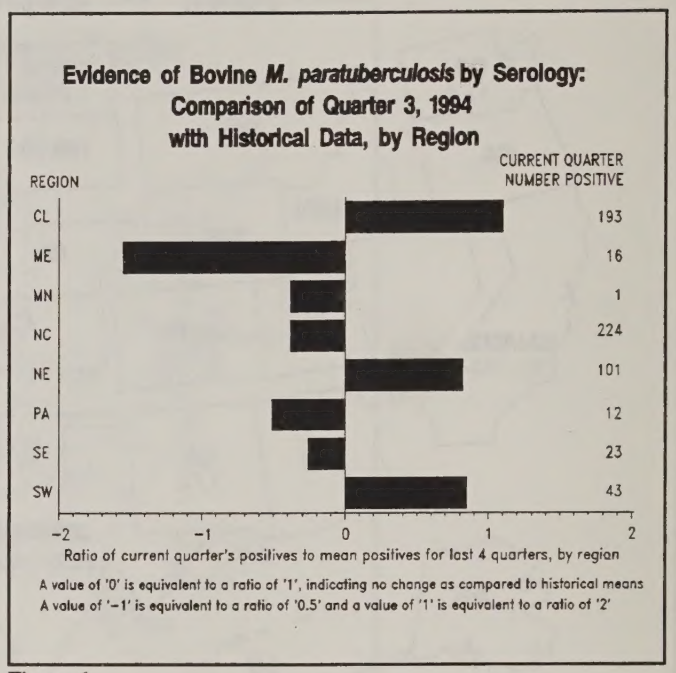


Figure 6

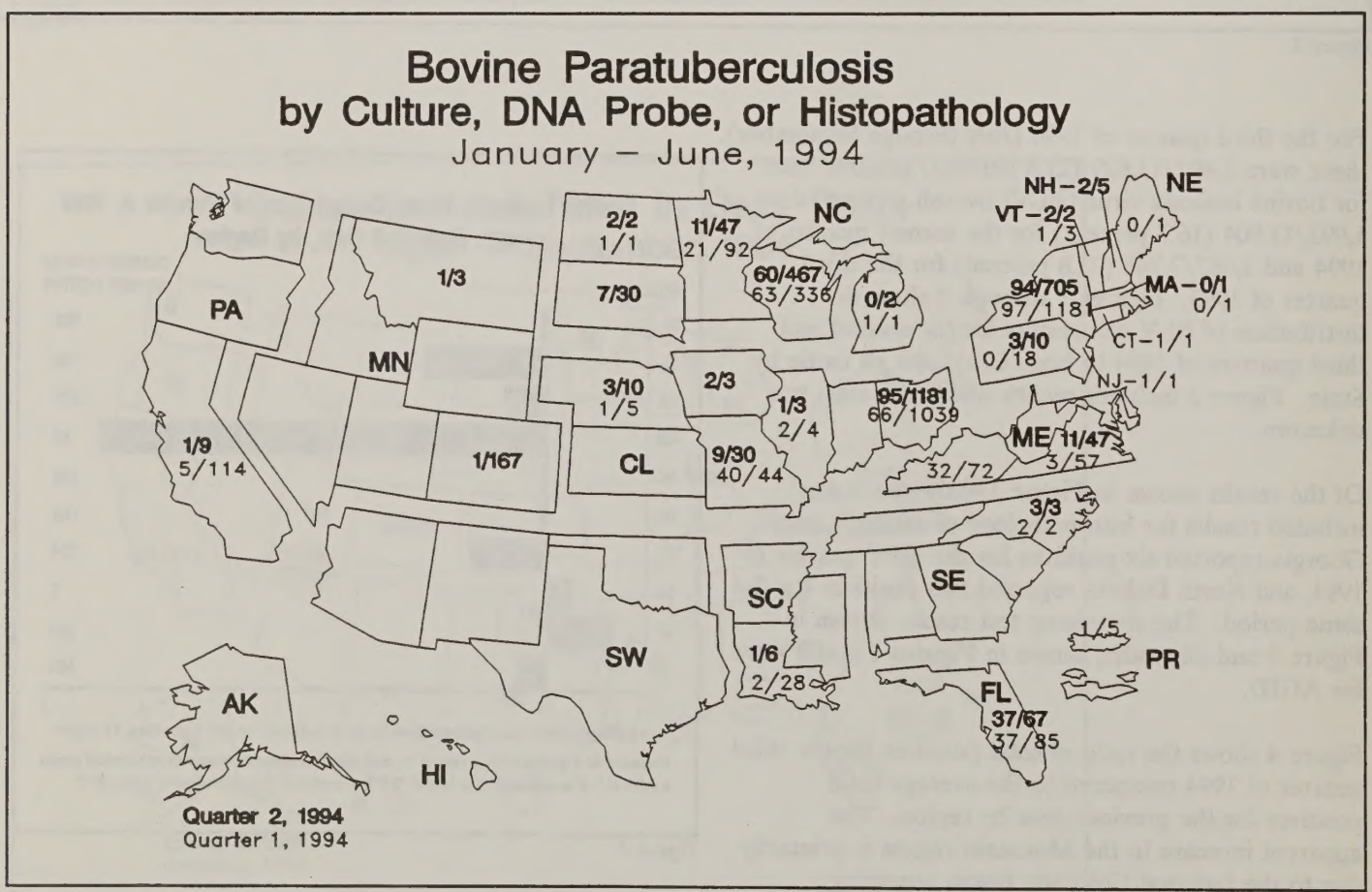


Figure 7

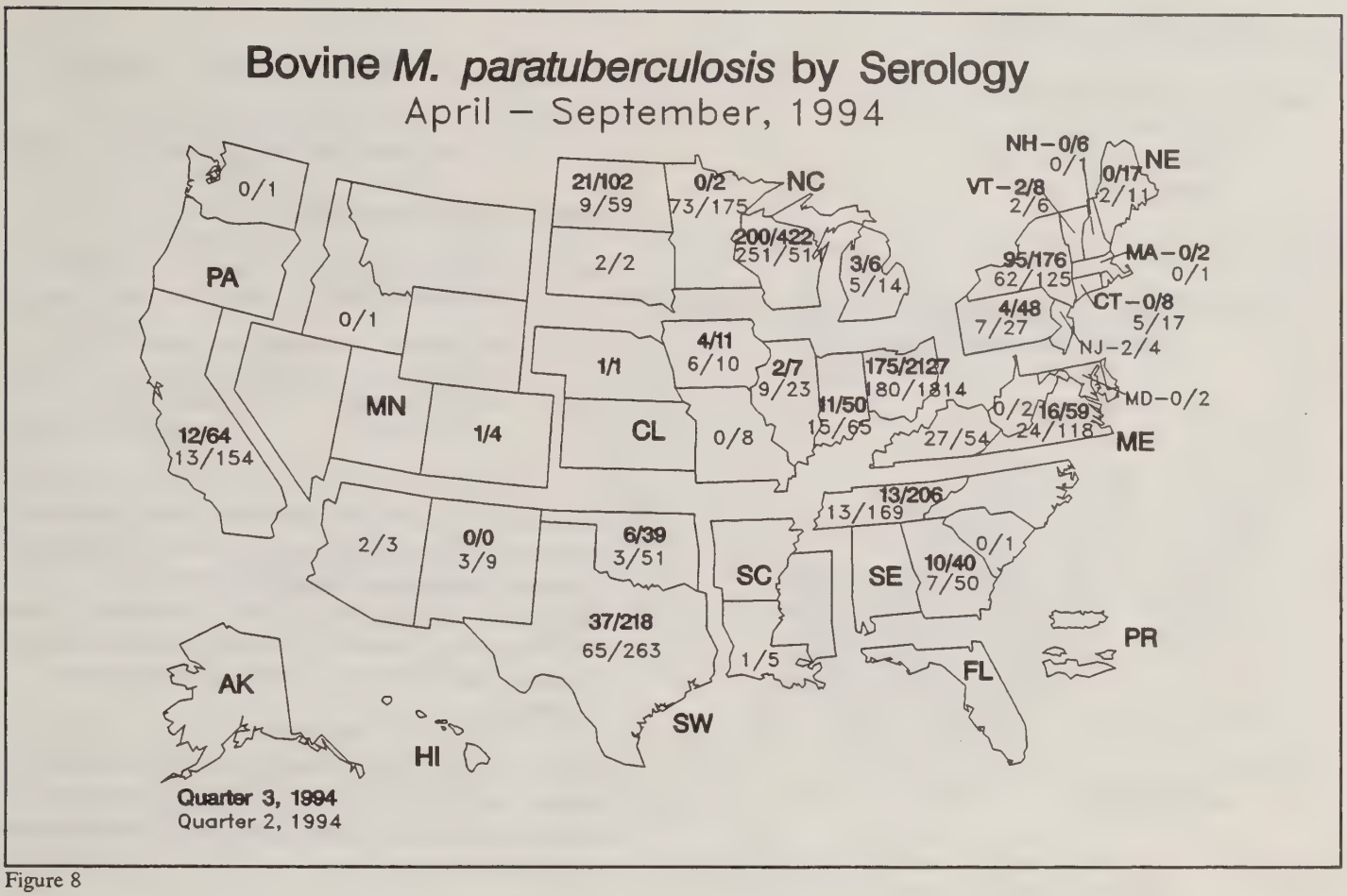


Figure 8

Bovine: Figure 5 shows the ratios of the second quarter of 1994 positives to the average number positive for the previous four quarters for paratuberculosis culture, DNA probe, and histology by region. Ratios for paratuberculosis serology positives for the third quarter of 1994 compared to the previous four quarters are shown in Figure 6.

Figure 7 shows the culture, DNA probe, and histopathology results for bovine paratuberculosis for the first and second quarters of 1994 by State. Overall positives for the second quarter of 1994 were 346/2,800 (12.6 percent).

Figure 8 shows the serology results for bovine paratuberculosis for the second and third quarters of 1994 by State. Overall positives for the third quarter of 1994 were down slightly to 613/3,623 (16.9 percent). Overall positives were 21.0 percent for quarter two, 1994, and 21.2 percent for quarter three, 1994.

Caprine: For the second quarter of 1994, five out of 38 caprine paratuberculosis culture, DNA probe, and histopathology tests were positive. Florida, Massachusetts, and Ohio had positive tests. For the third quarter of 1994, 116/2,036 (8.2 percent) caprine serology tests were positive. One laboratory reported an increased number of tests submitted and positives.

Ovine: For the second quarter of 1994, zero out of five ovine paratuberculosis culture, DNA probe, and histopathology tests were positive. For the third quarter of 1994, 11 out of 125 ovine serology tests were positive (8.8 percent).

Other: Culture results for nontraditional species reported for the second quarter of 1994 included 0/14 for cervidae. DNA probe positive results for the third quarter of 1994 were 3/12 (25.0 percent) for zoo ruminants. Serology positive results for the third quarter of 1994 were 0/2 for cervidae.

NOTE: States with no values are nonreporting States.

☐ Bovine Brucellosis

Source: Dr. Mike Gilsdorf
USDA:APHIS:VS
Cattle Diseases Staff
(301) 436-4918

Reactor herd = Herd with at least one case of brucellosis confirmed by serology or culture.

Definition of State Classifications:

Class B: More than 0.25 percent, but less than 1.5 percent of all herds infected.

Class A: No more than 0.25 percent of all herds infected.

Free: No infected herds under quarantine during the past 12 months.

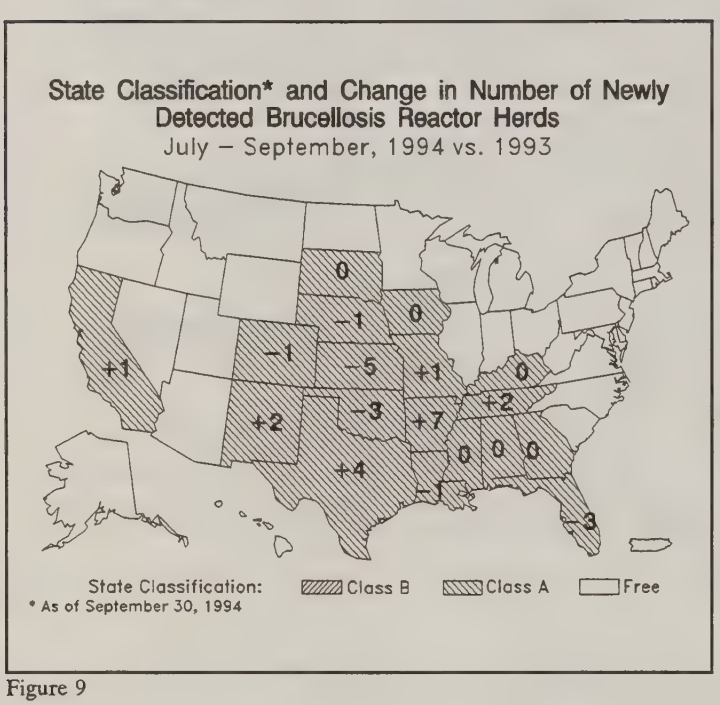


Figure 9

From July 1 through September 30, 1994, there were no State classification changes for bovine brucellosis. Arkansas, California, Missouri, New Mexico, Tennessee, and Texas had increased numbers of newly detected herds. Colorado, Florida, Kansas, Louisiana, Nebraska, and Oklahoma had decreased numbers (Figure 9).

For the entire U.S., there were 56 newly detected reactor herds from July through September 1994 (Figure 10), 32 fewer herds than were newly identified from April through June 1994.

The 56 brucellosis reactor herds detected in the third quarter of 1994 were one more than the 55 detected during the same quarter of 1993 (Figure 11). Since 1991, the second quarter of each year has seen a slight increase in the number of newly detected herds.

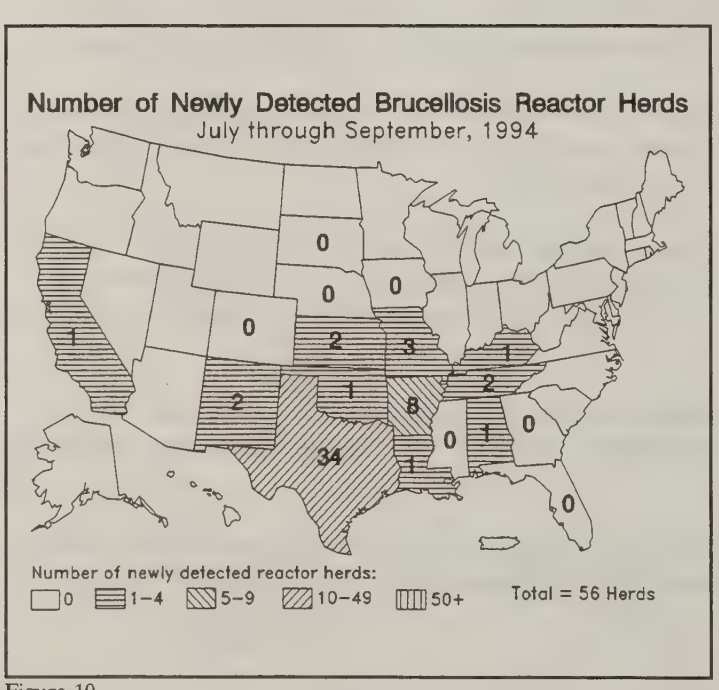


Figure 10

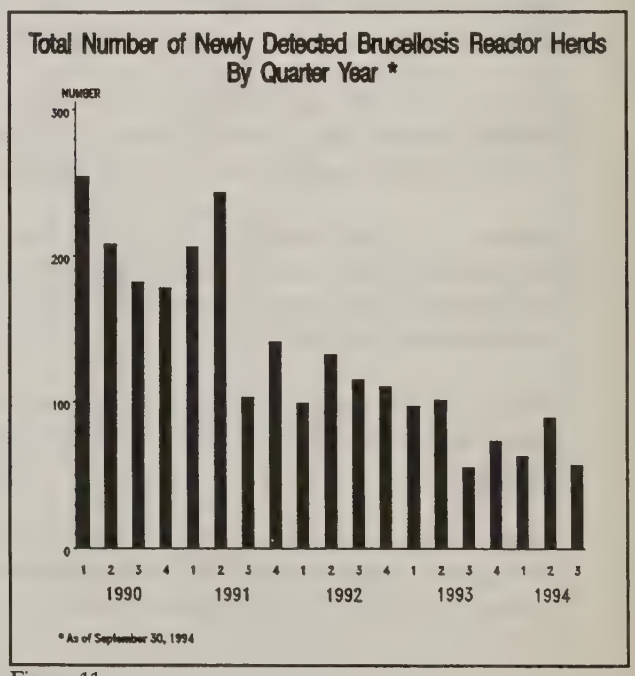


Figure 11

☐ Bovine Tuberculosis

Source: Dr. J.S. VanTiem
USDA:APHIS:VS
Cattle Diseases Staff
(301) 436-8715

Infected = Laboratory confirmed existence of *Mycobacterium bovis*.

Exposed = Animals directly associated with infected animals.

State Classifications:

Modified Accredited: Testing and Slaughter Surveillance programs in effect.

Accredited Free: Testing and Slaughter Surveillance programs have identified no infected bovines for five or more years.

A total of 11 cattle or bison herds were known to be infected with bovine tuberculosis as of September 30, 1994 (Figure 12). Virginia's status changed from accredited free to modified accredited.

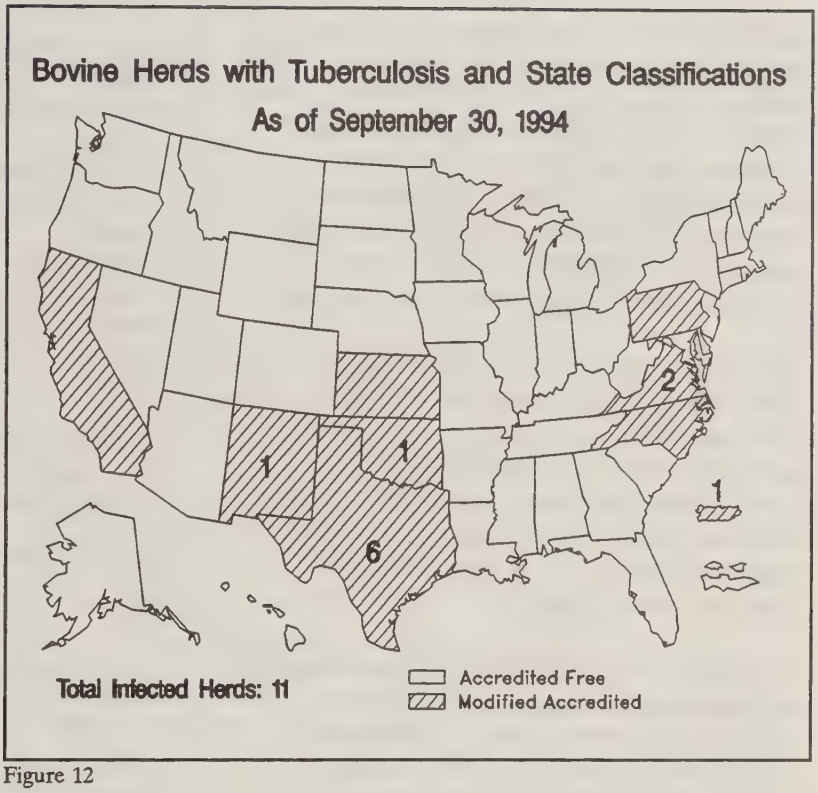


Figure 12

Pennsylvania identified one new herd of cervidae as being infected or exposed to bovine tuberculosis for a total of 12 in the U. S. No changes were reported in the other States for the third quarter of 1994 (Figure 13).

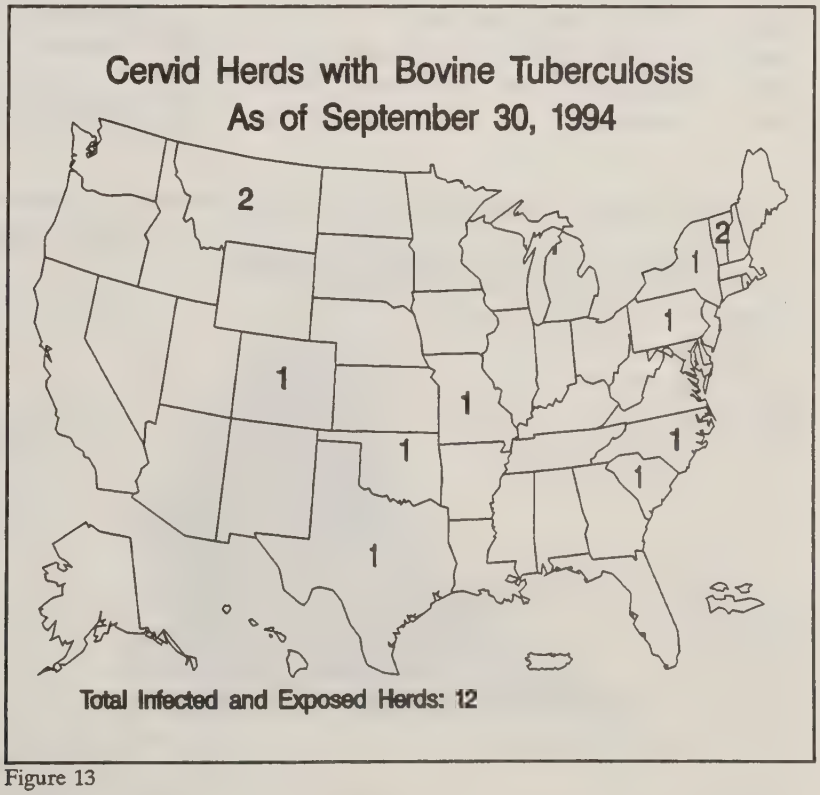


Figure 13

☐ Bovine Spongiform Encephalopathy (BSE)

Sources: Dr. T. Chillaud, Office International des Epizooties
Dr. G. O. Denny, Northern Ireland
Dr. J. Wilesmith, Great Britain

Italy has reported two cases of BSE in cows imported from Great Britain (Table 3). This marks the second new country to report a case of BSE in 1994 (joining Germany) and the eighth country to experience BSE in an imported animal. Table 3 has been modified from previous issues of the DxMONITOR to present the countries affected with BSE in chronological order by date of first diagnosis.

Great Britain reported 5,807 newly confirmed cases between September 2 and December 2, 1994, an increase over the previous 3-month period (Table 4). Review of the epidemic curve (Figure 14) reveals a similar increase, on the down curve, in the fall months of 1993, suggesting that this does not represent a turnabout in the epidemic.

Surveillance for BSE in the U.S. continues with an additional 124 brains received by the National Veterinary Services Laboratories (NVSL) for examination during the last 4 months (Figure 15). The total number of brains which have been submitted for examination was 1,986, as of December 30, 1994. No evidence of BSE has been found in any U.S. cattle.

Other Countries Affected by BSE

Country[1]	Cases Imported[2] Cattle	Cases Native Cattle	Total Cases	Date of Last Update
Northern Ireland	Yes	Yes	1385	1 Dec 94
Republic of Ireland	Yes	Yes	94	30 Sept 94
Oman	Yes	No	2	31 Jul 89*
Falkland Islands	Yes	No	1	Jul 89*
Switzerland	No	Yes	116	24 Nov 94
France	No	Yes	9	1 Sept 94
Denmark	Yes	No	1	10 Jul 92*
Portugal	Yes	Yes	17	20 Dec 94
Canada	Yes	No	1	15 Dec 93*
Germany	Yes	No	4	23 Jun 94*
Italy	Yes	No	2	2 Nov 94

1. In order of first reported case/diagnosis.
2. Imported from UK or another country with endemic BSE.
* Date of last reported case in an imported animal.

Table 3

Bovine Spongiform Encephalopathy
Descriptive Epidemiological Statistics for Great Britain*
As of December 2, 1994

Total number of confirmed cases:	140,009
Total number of affected herds:	31,681
Proportion of dairy herds affected:	52.6%
Proportion of beef suckler herds affected:	14.1%

* England, Scotland, and Wales

Table 4

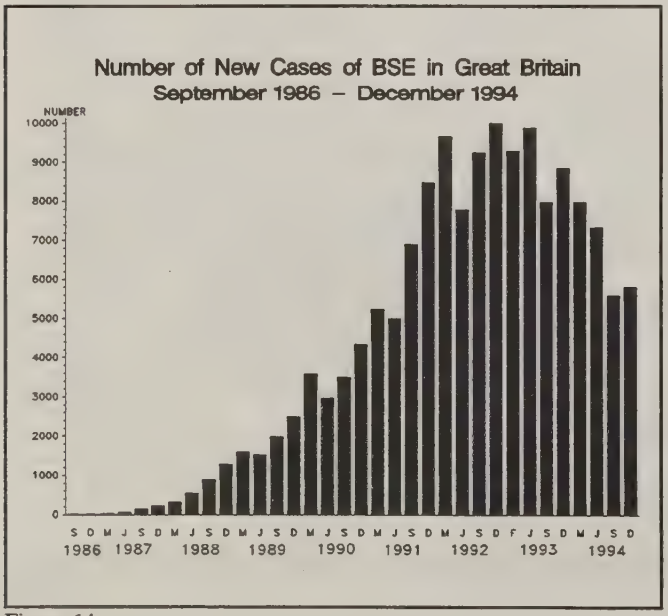


Figure 14

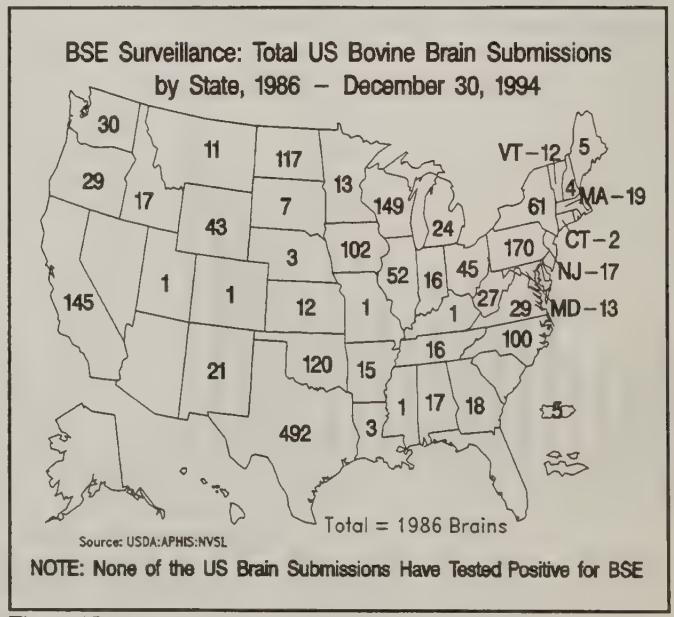


Figure 15

☐ Equine Viral Arteritis (EVA)

Criteria: Virus neutralization (>1:4 titer) and no history of vaccination, or virus isolation from tissue or semen.

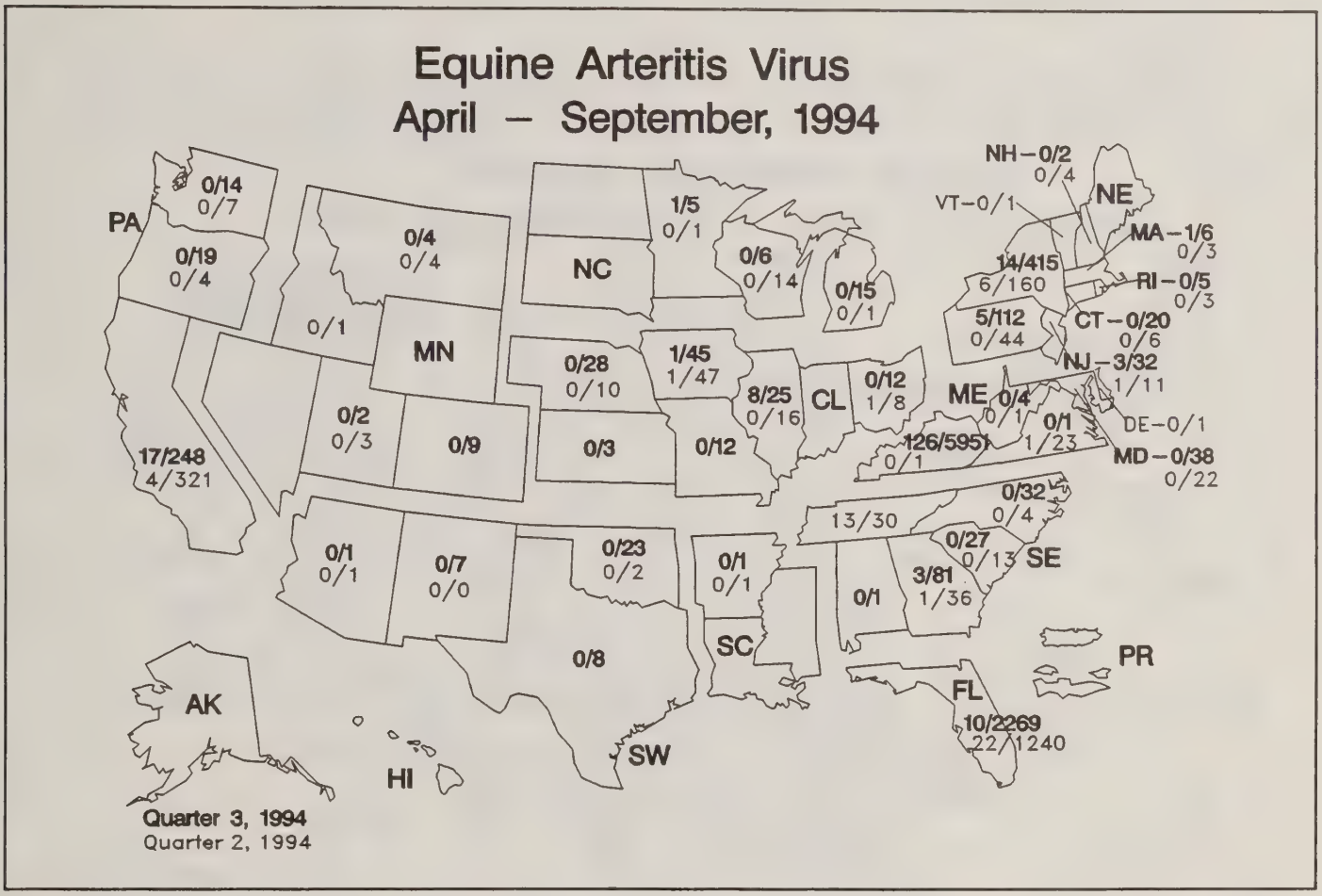


Figure 16

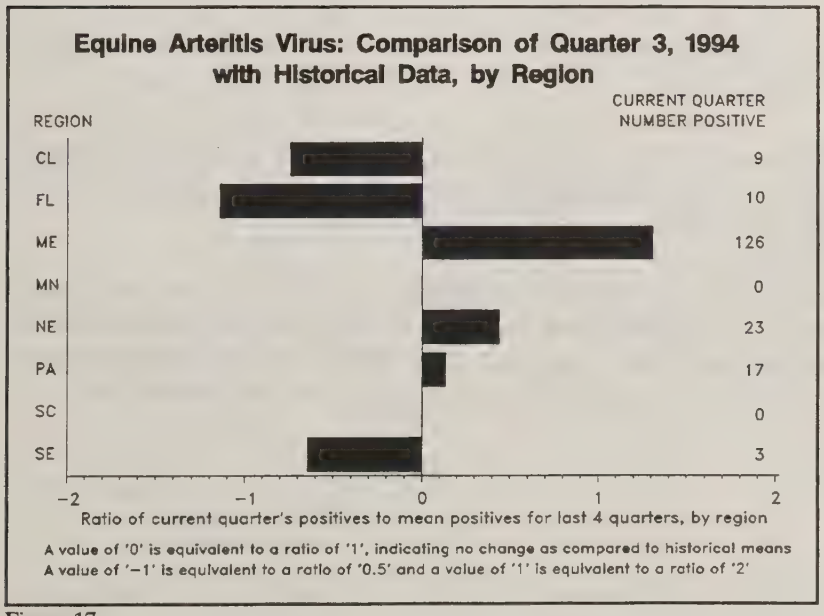


Figure 17

For all regions combined, 189 positive tests (2.0 percent of the 9,483 tests) for equine viral arteritis (EVA) were reported for the third quarter of 1994 (Figure 16). A steady decline in percent positive for EVA since the third quarter, 1993, (5.3, 4.2, 2.9, 2.5, and 2.0 percent, respectively) may be misleading, since testing is somewhat dependent on interstate movement and changes in regulations.

An apparent increase in the number of positives for the Mideast region (particularly Kentucky) is partially due to a missing report from one laboratory last quarter (Figure 17).

NOTE: States with no values are nonreporting States.

☐ Equine Infectious Anemia (EIA)

Sources: Dr. Tim Cordes
USDA:APHIS:VS
Equine Diseases Staff
(301) 436-6954

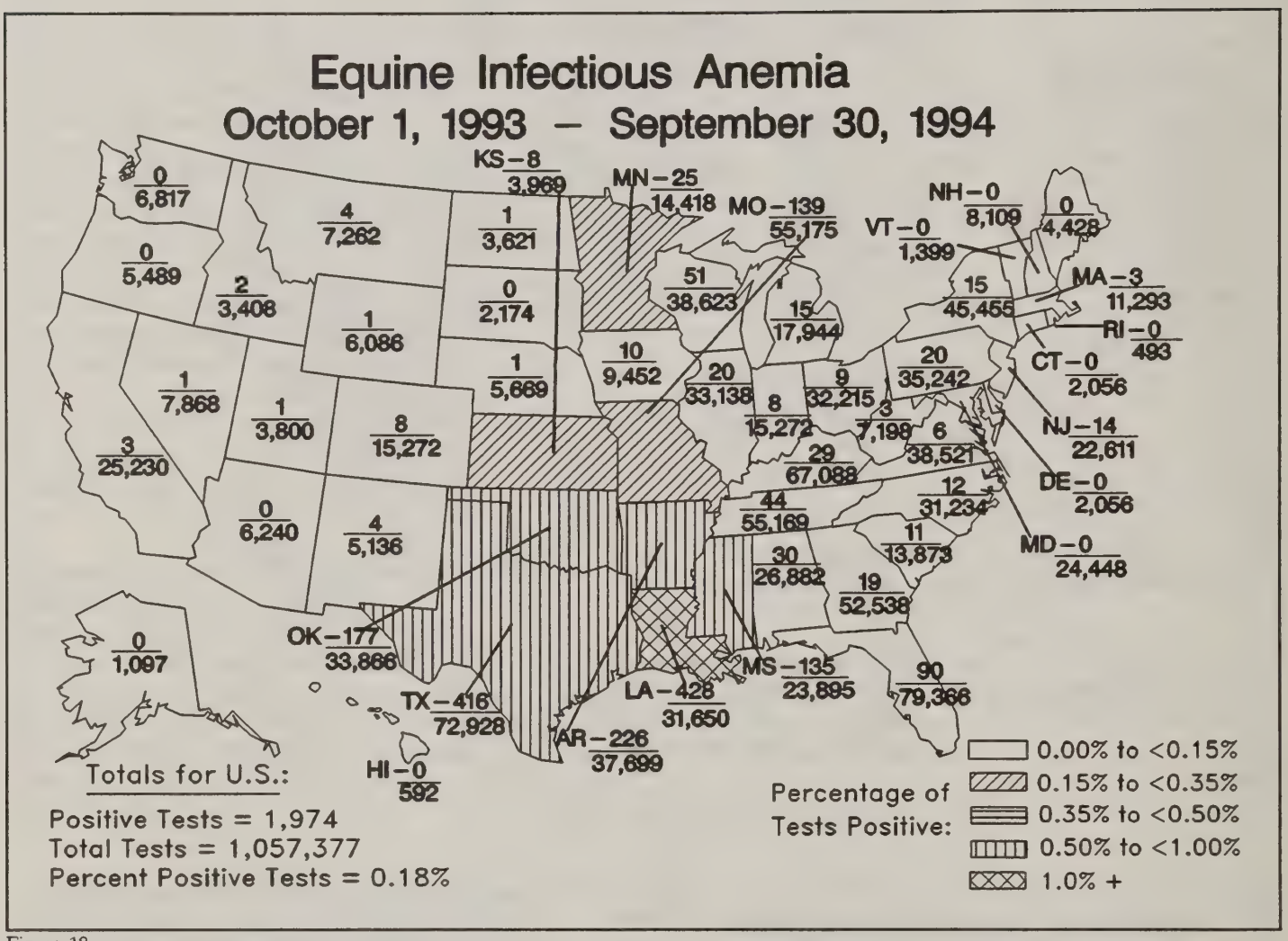


Figure 18

An increased number of tests for equine infectious anemia (EIA) this year over last (1,057,377 compared to 963,882) and the decreased percent of positives over the last 3 years (0.18/0.24/0.277 percent, 1994, 1993 and 1992, respectively) may warrant further observation (Figure 18). It is too early to predict a trend.

Caution should be used in interpreting both the number of agar gel immunodiffusion (AGID) tests that were positive and the percentage of total tests positive. Testing for EIA is performed primarily to comply with regulations on the movement of horses. These regulations may vary from one State to another. Individual horses may be tested more than once. Thus, the number of positive tests reported from a given State may not be a good indicator of the prevalence of EIA in that State.

☐ Porcine Reproductive and Respiratory Syndrome (PRRS)

Criteria: Virus isolation or antibody detection by indirect fluorescent antibody.

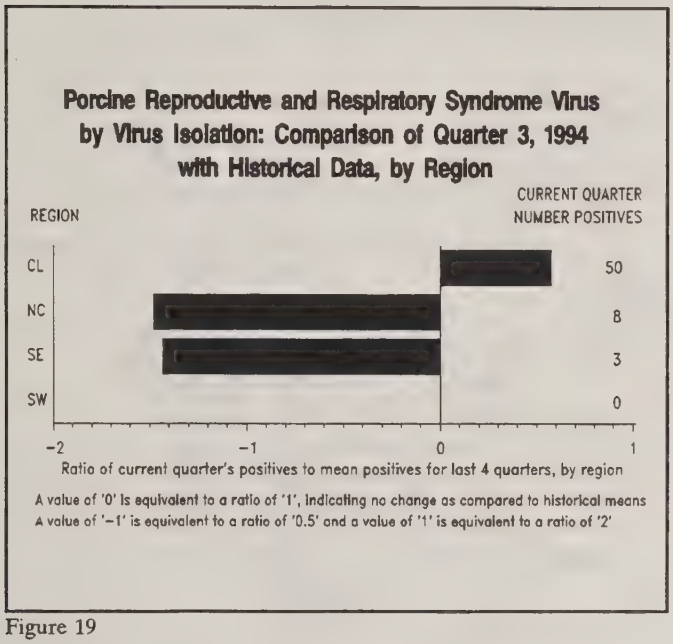


Figure 19

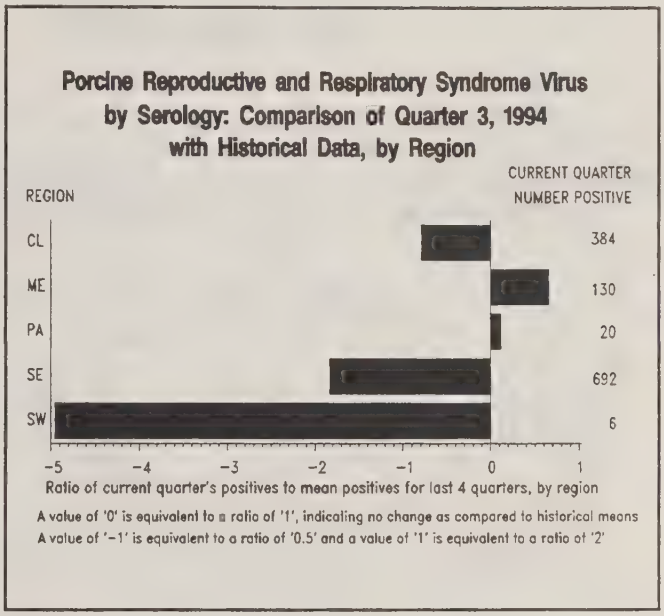


Figure 20

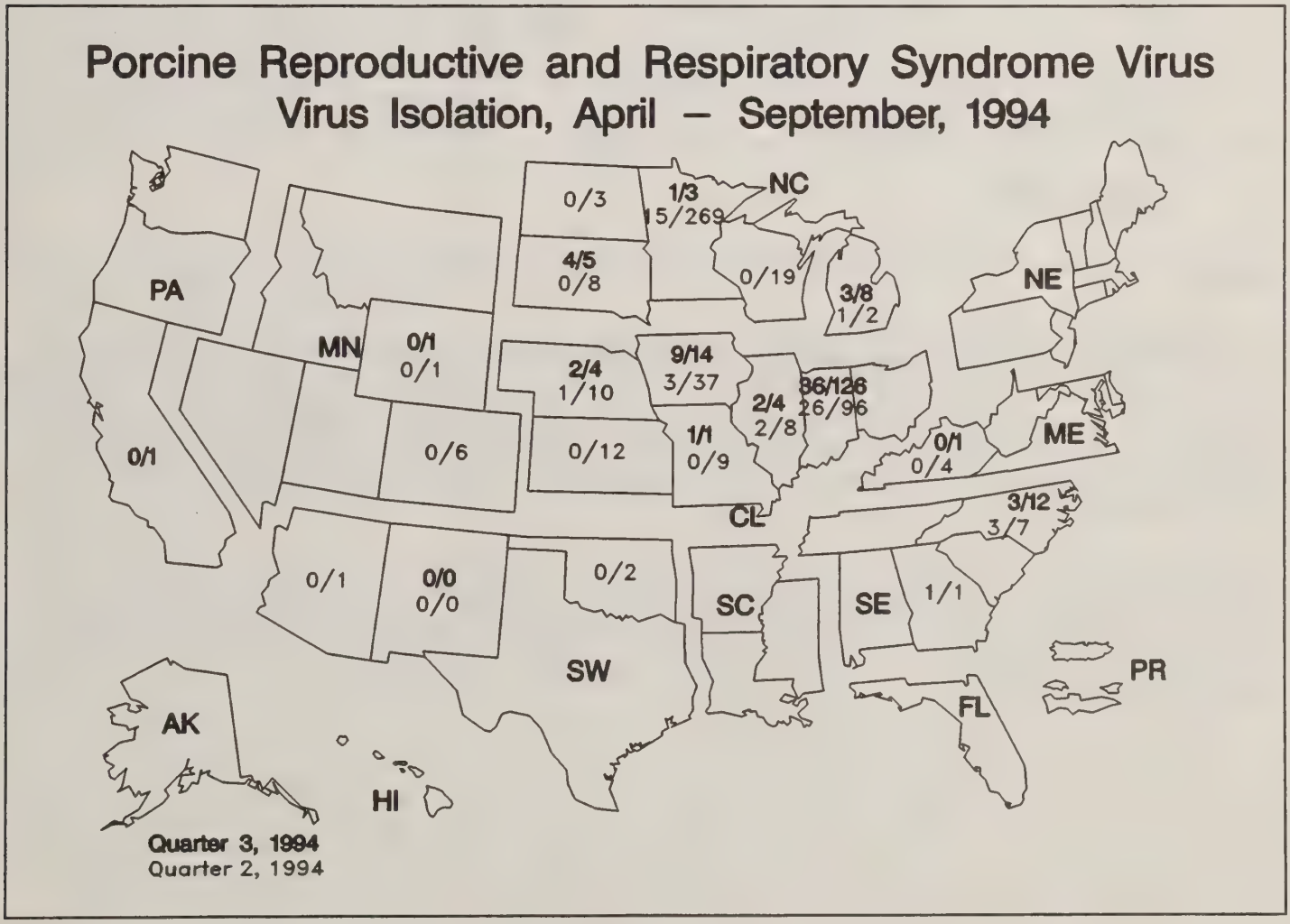


Figure 21

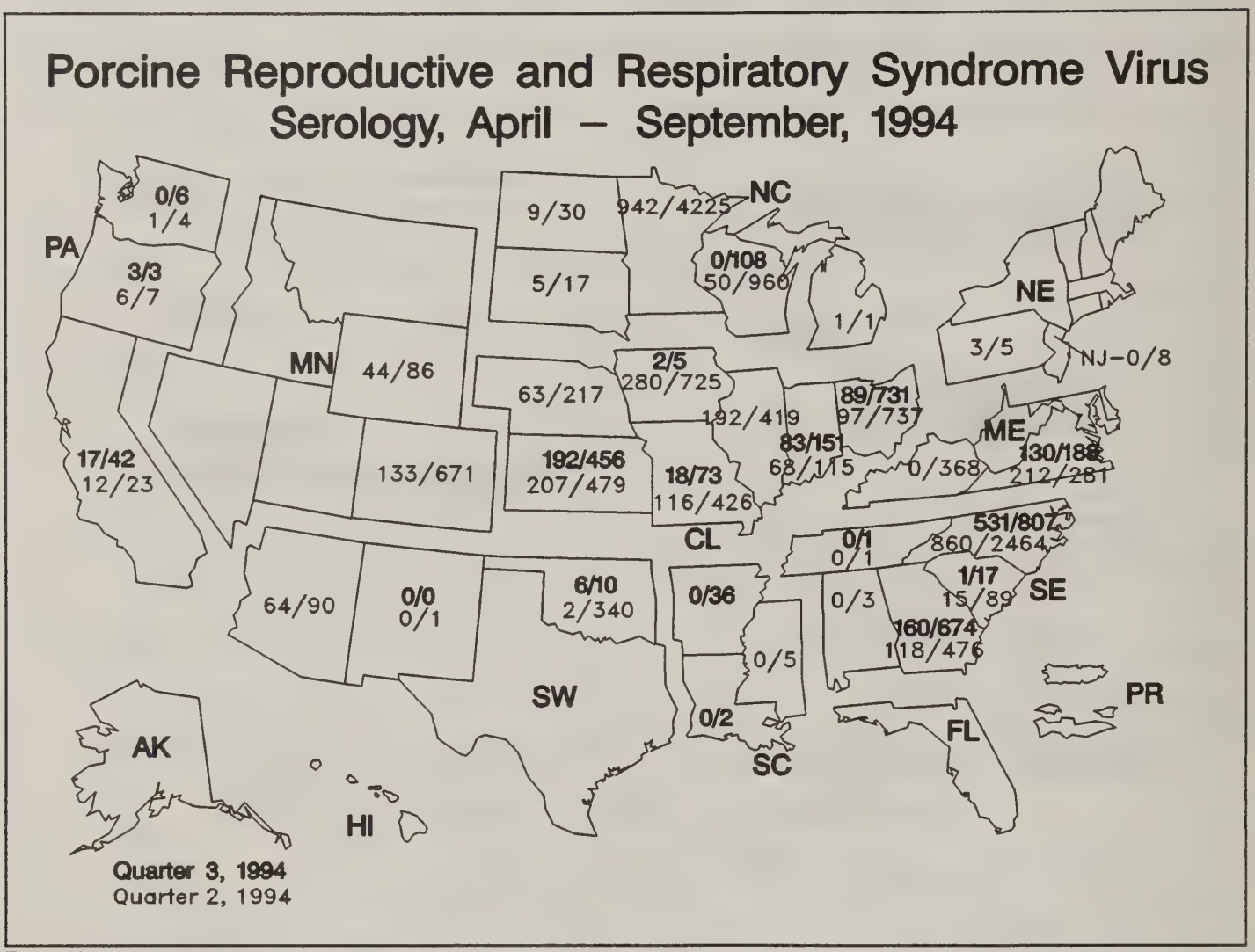


Figure 22

Positives for porcine reproductive and respiratory syndrome (PRRS) virus isolation were 61 out of 180 tests (33.9 percent) for the third quarter of 1994. Figure 19 shows the ratio of number positive for quarter three 1994 compared to the average number positive for the previous four quarters for isolation results. Positives for IFA serology testing were 1,232/3,310 (37.2 percent) for the third quarter of 1994. The large decrease in the North Central region for isolation is partly due to one laboratory not yet reporting quarter three data. Figure 20 shows the ratio comparison for serology results.

Minnesota, which does a large amount of PRRS testing, does not yet have data available for the third quarter of 1994. Quarter two 1994 results changed from 32/107 (30.0 percent) to 52/495 (10.5 percent) for isolation and from 1,046/2,757 (37.9 percent) to 3,500/13,273 (26.4 percent) for serology after inclusion of the Minnesota laboratory's results. Figures 21 and 22 show the results of virus isolation and IFA serology, respectively, by State for the second and third quarters of 1994.

NOTE: States with no values are nonreporting States.

☐ Swine Brucellosis

Source: Dr. Joe Annelli
USDA:APHIS:VS
Swine Health Staff
(301) 436-7767

State Classifications:

Stage 1: Organization
(Surveillance and traceback begun.)

Stage 2: ≥ 10 percent Surveillance/year. ≥ 80 percent of tracebacks successful.

Stage 3: Validated Free
(≥ 5 percent Surveillance/year. ≥ 80 percent of tracebacks successful.

No State classification changes have been reported for the last nine months. Five States had newly detected swine brucellosis reactor herds [Alabama (1), Florida (5), Louisiana (1), Oklahoma (1), and Texas (3)] during the second quarter of 1994. Five States had newly detected reactor herds (Alabama, Florida, Missouri, Oklahoma, and Texas) during the third quarter of 1994 (Figure 23). The total number of newly detected herds was 11 in the second quarter and 12 in the third quarter of 1994 compared to 14 in the first quarter of 1994.

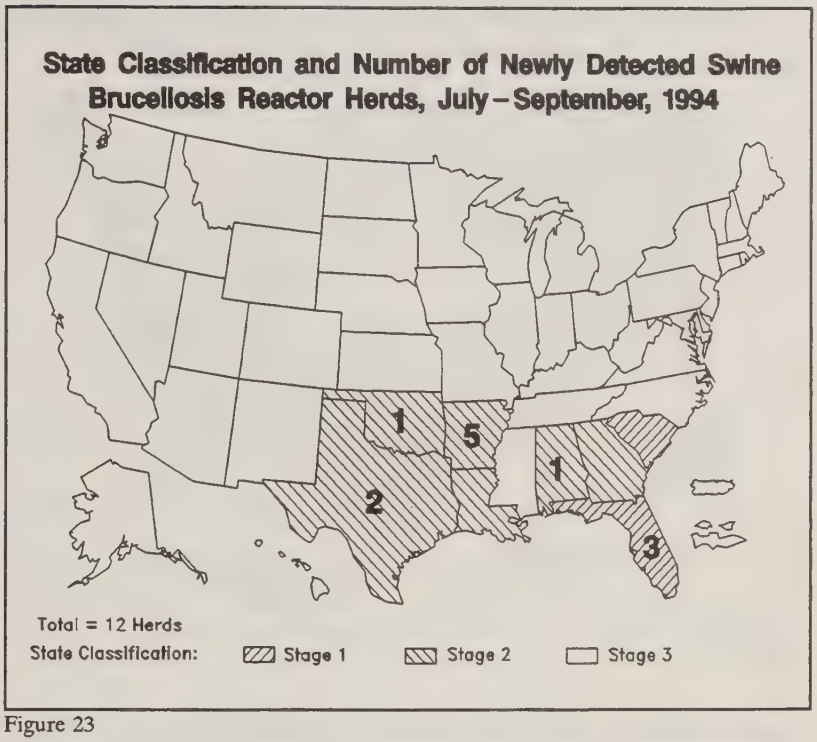


Figure 23

There were 14 swine herds quarantined for brucellosis in the second quarter of 1994 [Florida (6), Louisiana (1), Oklahoma (1), and Texas (6)]. As of September 30, 1994, eight herds were quarantined (Figure 24). The total number of quarantined herds has decreased steadily since the third quarter of 1992 (63, 63, 59, 50, 37, 34, 31, 14, 14, and 8 quarantined herds, respectively).

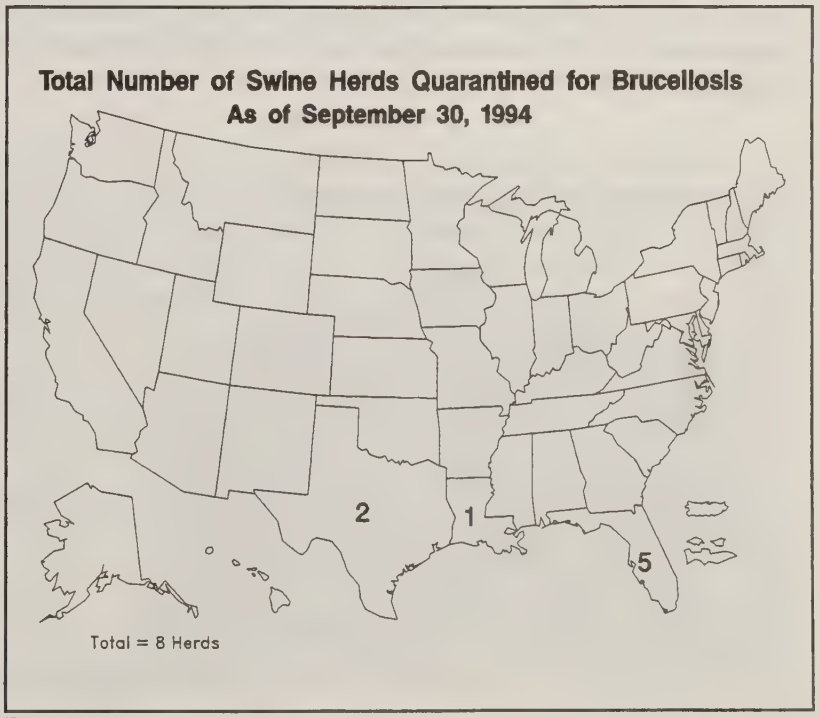


Figure 24

☐ Pseudorabies Virus (PRV)

Source: Dr. Joe Annelli
USDA:APHIS:VS
Swine Health Staff
(301) 436-7767

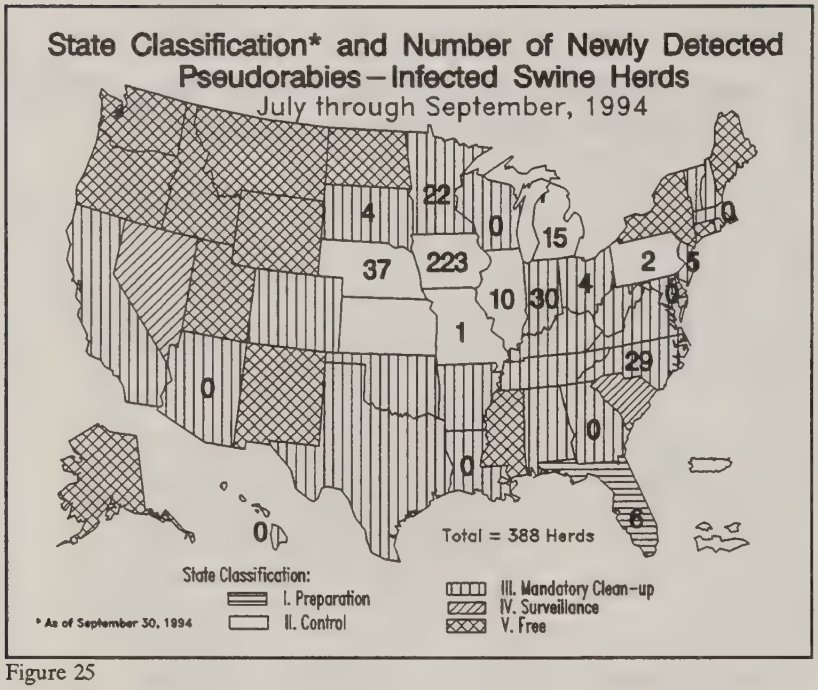


Figure 25

A total of 598 swine herds were newly identified with pseudorabies virus during the second quarter of 1994. A total of 388 swine herds were newly identified during the third quarter of 1994 (Figure 25). The number of newly infected herds in Iowa was 325 in the second quarter and 223 in the third quarter of 1994.

Iowa had 60.8 percent of all known PRV infected swine herds in the United States (3,771 out of 6,205) in the second quarter and 59.6 percent (3,449 out of 5,788) in the third quarter of 1994. The total number of known infected herds in the U.S. has continued to decline (Figure 26). The herd prevalence of PRV was 2.7 percent for quarter two and 2.5 percent for the third quarter of 1994. Since 1992, the herd prevalence has remained between two and three percent.

The percentage of known infected swine herds in clean-up programs has steadily increased for all States since 1990 (Figure 27). For the second quarter of 1994, the overall participation rate was 93.6 percent, with 5,809 of the 6,205 known infected herds on clean-up plans and 94.6 percent (5,474 out of 5,788) for quarter three 1994.

State classification changes for the second quarter of 1994 included Iowa and Rhode Island (Class II); Arizona, Maryland, New Jersey and South Dakota (Class III); and Idaho, Montana and Oregon (Class V). Changes for the third quarter of 1994 included Maryland (Class III), Delaware and South Carolina (Class IV), and North Dakota and Washington (Class V).

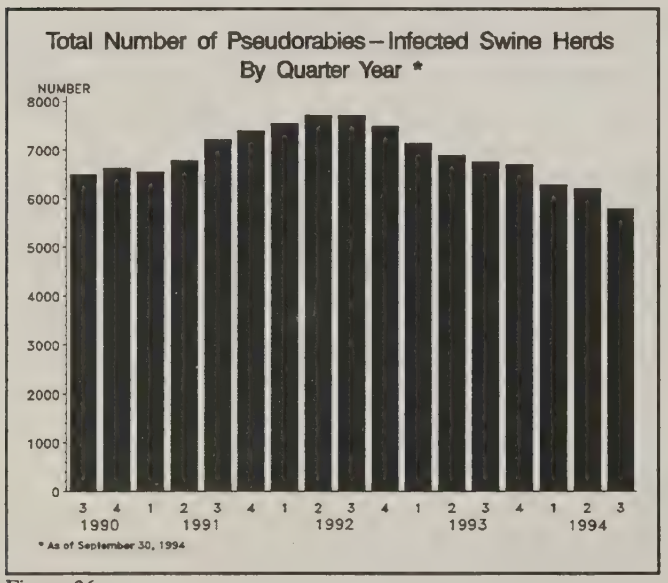


Figure 26

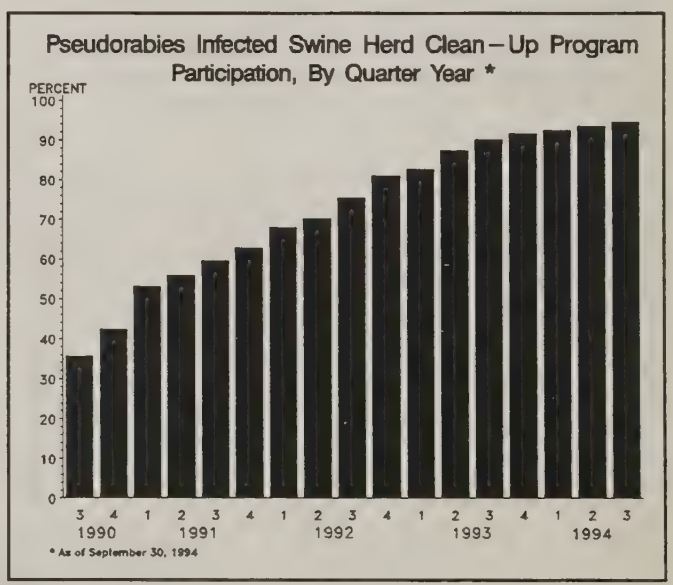


Figure 27

II. Etiologic Agents Associated with Bovine Abortion

Section II characterizes selected agents associated with bovine abortions (aborted fetuses or congenitally infected calves) from accessions reported to veterinary diagnostic laboratories.

Key to Figures in this Section:

- **Deviation bar charts show the base 2 logarithmic transformation of the ratio of positive tests for the current quarter to the mean of positive tests for the previous 4 quarters. A value of '0' is equivalent to a ratio of 1, indicating no change compared to historical values. Each unit change indicates a doubling (positive change) or halving (negative change) of the present value compared to the mean of the historical values.**
- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region or State of specimen origin and quarter of the calendar year for specimen submission.**
- **See map on inside front cover for regions.**

☐ *Neospora* spp.

Criteria: Histopathology and detection of antigen by immunohistochemistry, or detection of antibody in aborted fetus by indirect FA.

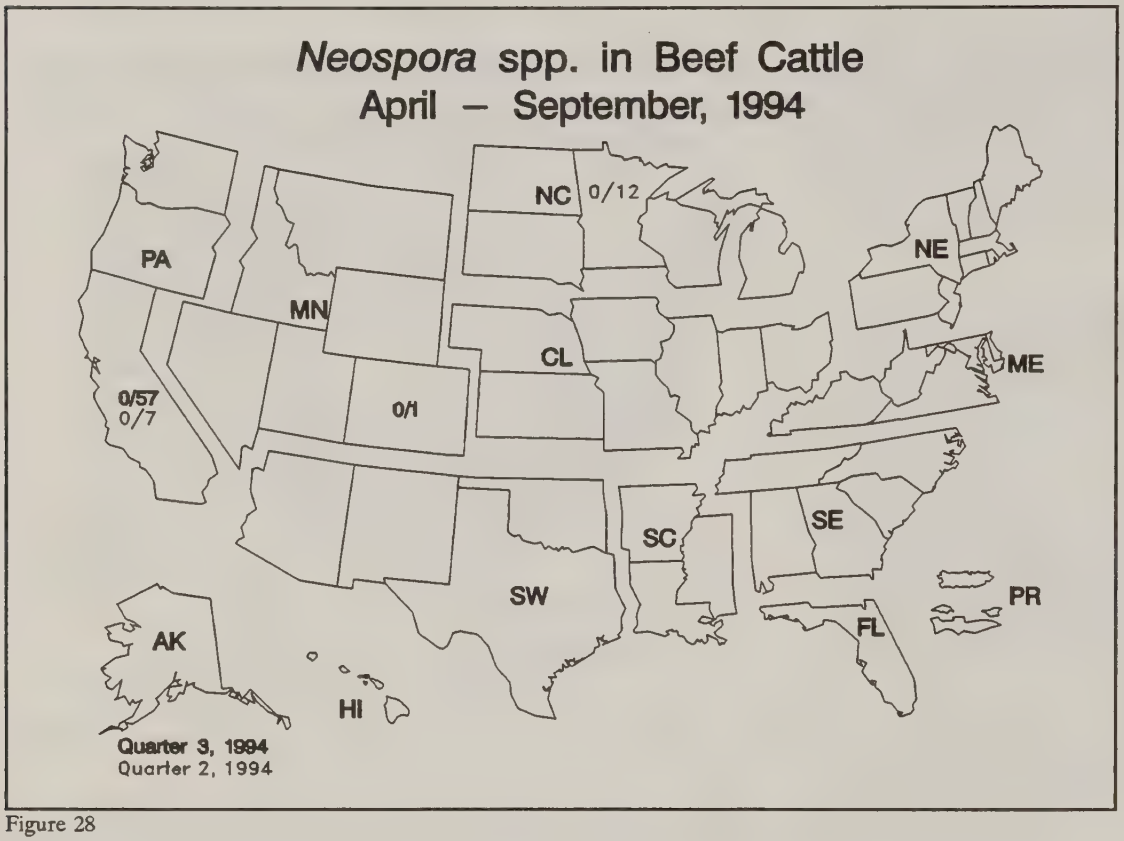


Figure 28

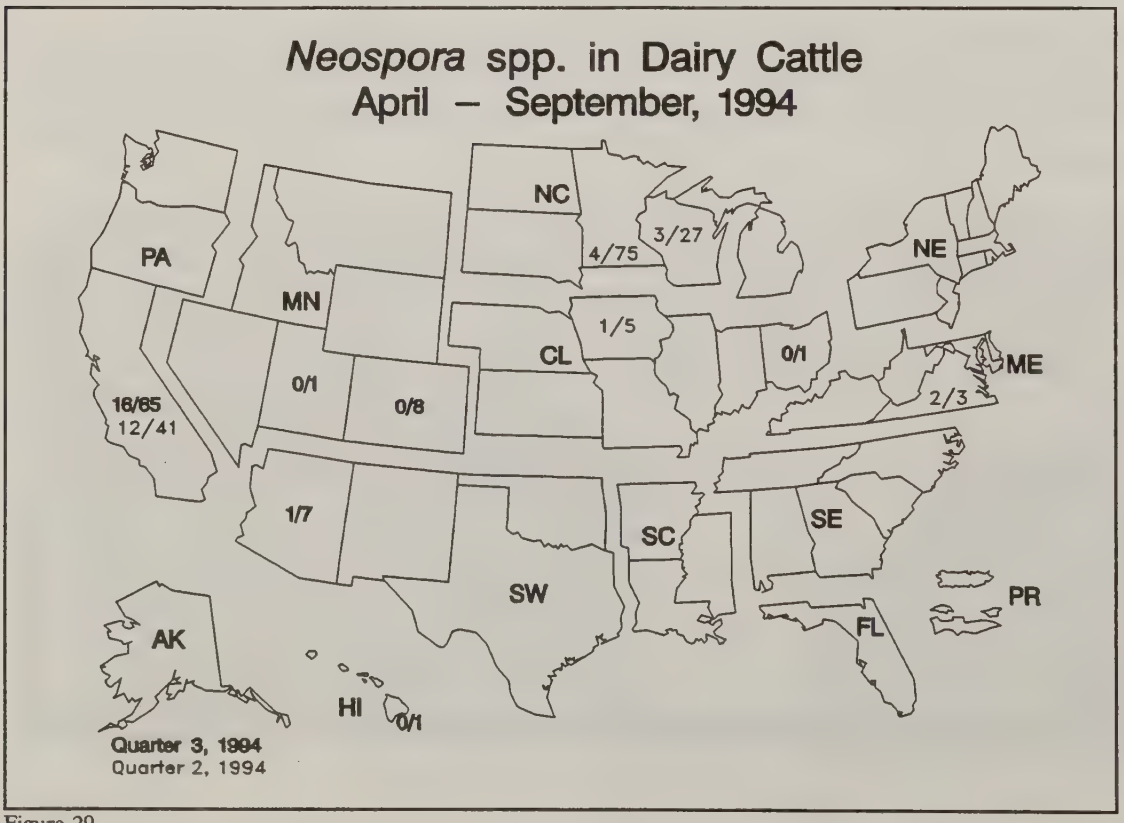


Figure 29

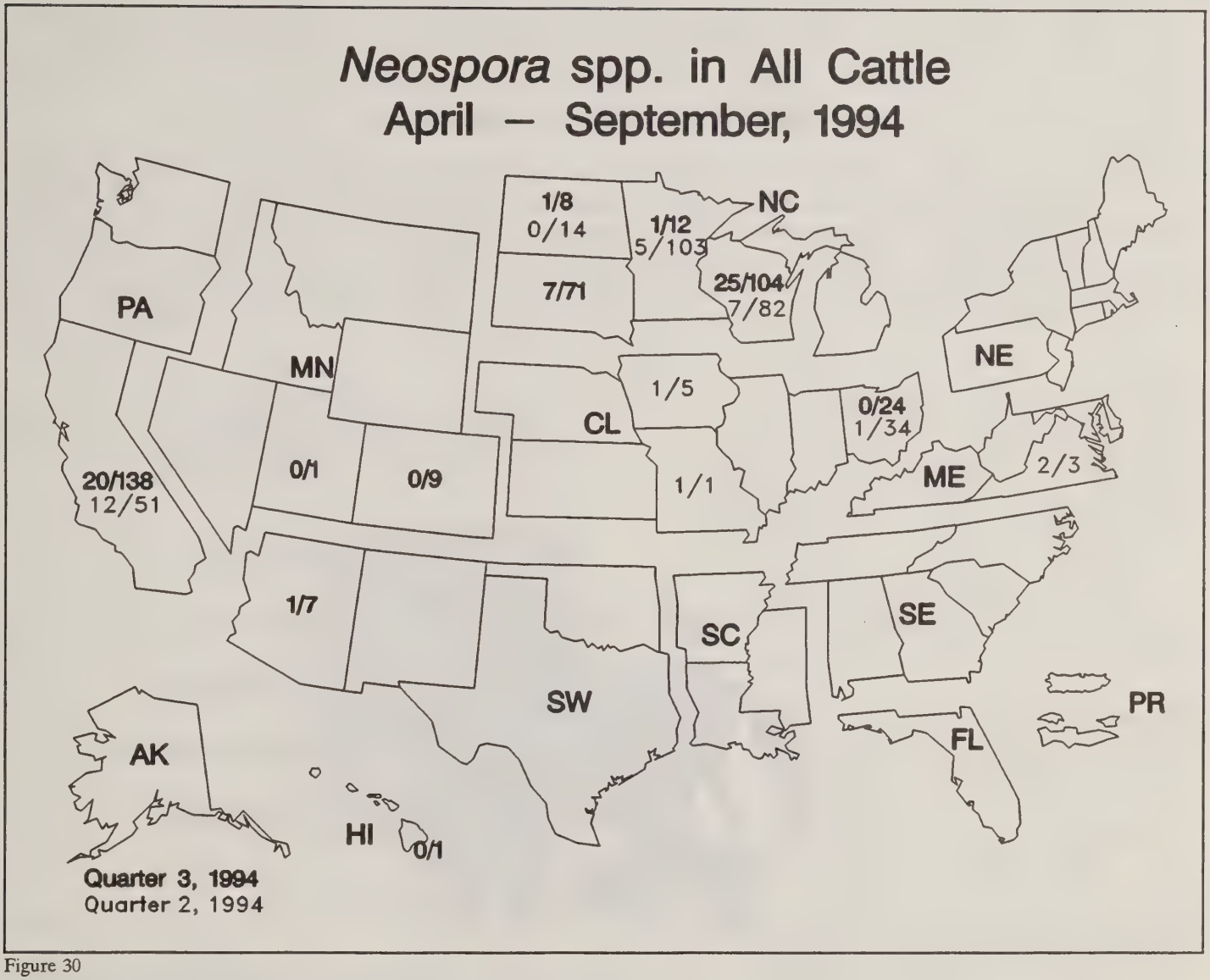


Figure 30

Figures 28 through 30 show the distribution of test results for *Neospora* spp. for the second and third quarters of 1994 by State. Figure 30 includes results where the class was unknown. For all cattle, 55/375 (14.7 percent) accessions tested for *Neospora* spp. were positive during the third quarter of 1994. Although these numbers show an increase, they may reflect increased awareness or testing, rather than an actual increase in positives. Wisconsin reported an increase in testing and results were reported for South Dakota for the first time.

Figure 31 shows an increase in ratio comparisons for the North Central region which are mostly a reflection of the changes described above.

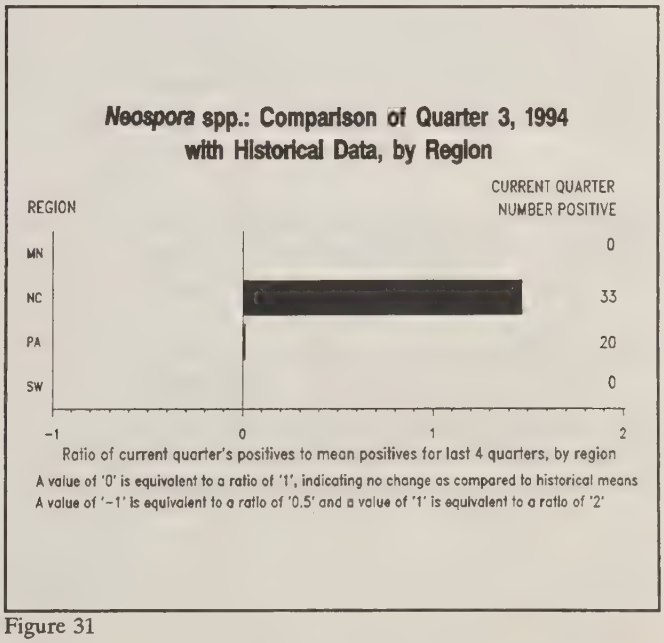


Figure 31

NOTE: States with no values are nonreporting States.

DxNEWS

This section contains news items and articles of potential interest to diagnostic laboratories. Submissions from nonparticipating laboratories are welcome.

Summary of Equine Accession Study

Staff at the USDA:APHIS:VS, Centers for Epidemiology and Animal Health (CEAH) developed a questionnaire to determine the type, number, and charges for equine accessions submitted to diagnostic laboratories. The questionnaire was evaluated by the editorial review group of the DxMONITOR Animal Health Report and was faxed to laboratories participating in the DxMONITOR as of August 24, 1994. A total of 26 laboratories received the survey. Twenty-three were completed and returned by September 20, 1994, for a return rate of 88.5 percent. Not all questions on the questionnaire were completed by all respondents, so denominators for frequency data will vary in this report.

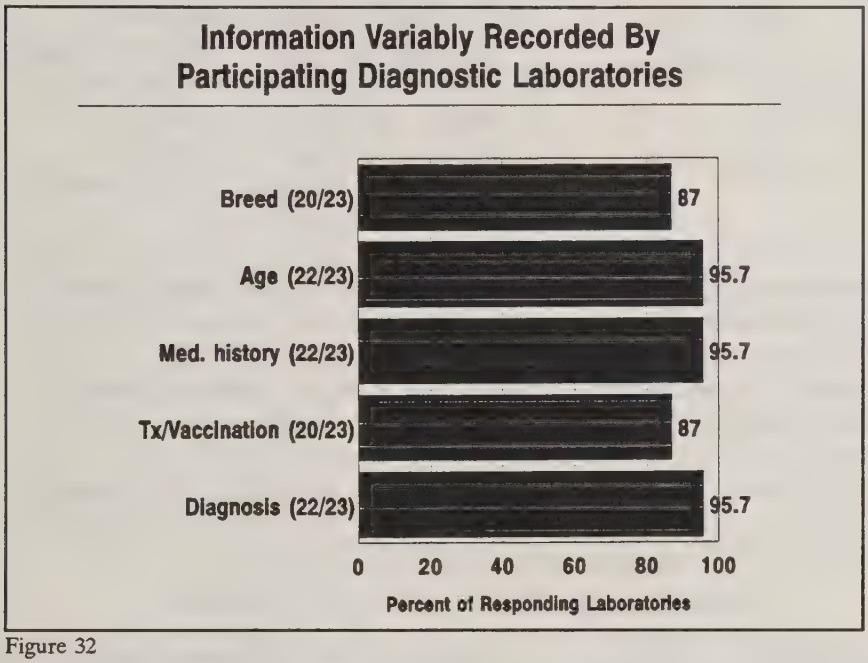


Figure 32

Means of Recording Information Regarding Accessions

	Computer	Hard Copy	Both
Owner	1	2	19
Origin	1	3	18
Veterinarian	1	2	19
Species	1	2	19
Breed	3	2	15
Age	3	3	16
Results	4	3	15
Medical History	0	13	9
Treatment/Vaccination	0	13	7
Final diagnosis	3	4	15

Figure 33

All 23 responding laboratories recorded the following: 1) name of the horse owner, 2) name of the veterinarian submitting the sample, 3) city and State of origin, 4) source animal's species, and 5) results of the tests performed. A majority of laboratories recorded the: 1) breed, 2) age, 3) source animal's history, 4) source animal's treatment or vaccination status, and 5) final diagnosis (Figure 32).

Method of recording information regarding the accession was, for the most part, on both computer and hard copy (Figure 33). The animal's history and treatment and vaccination status were more commonly recorded as hard copy only. Two laboratories kept all of the above information regarding an accession on hard copy only. Nineteen of the 23 laboratories indicated that the specific diagnosis on an accession was readily retrievable from the data base. When asked if two serum samples submitted on different occasions from the same horse could be readily linked (acute and convalescent samples), 12 of 22 laboratories responded "yes."

Participants were asked to report the annual number of various types of equine accessions during the years 1991, 1992, and 1993.

- Twenty-two laboratories reported a total of 3,634 equine necropsies per year. The median for all responding laboratories was 65 and the range was 9 to 1,800 per laboratory (Figure 34).

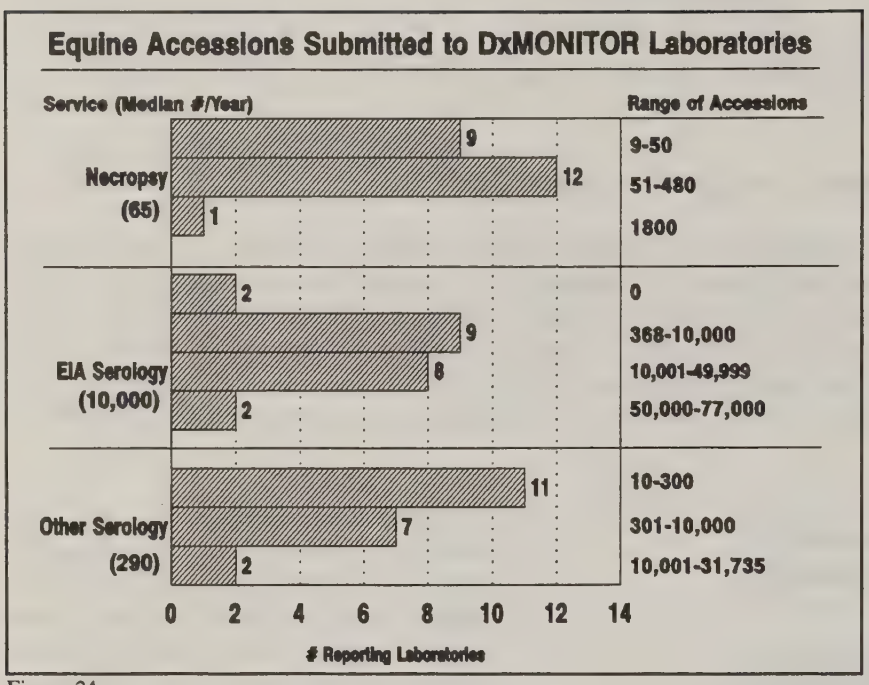


Figure 34

- Serologic tests for equine infectious anemia (EIA) totalled 312,972 for 21 responding laboratories. The annual median number of serologic tests for EIA for responding laboratories was 10,000 with a range of 0 to 77,000 per laboratory (Figure 34).

- The median number of serologic tests, exclusive of tests for EIA, for all responding laboratories was 290 annually with a range of 10 to 31,735 per laboratory and a total of 63,058 for the 20 laboratories responding to this question (Figure 34).

- The annual number of accessions submitted for bacteriologic culture ranged from 37 to 4,650 per laboratory with a median of 530 for all responding laboratories (Figure 35). The 19 laboratories responding to this question reported a total of 16,664.

- The total number of accessions for virus isolation was 3,649 per year for 18 laboratories with a range of 0 to 1,500 per laboratory and a median of 31 accessions for all responding laboratories (Figure 35).

- Nineteen respondents had a median of 117 biopsies annually with a range of 0 to 3,700 per laboratory and a total annual number for the 19 laboratories of 6,810 (Figure 35).

A majority of laboratories offered the following services for equine accessions: clinical pathology (18/23), toxicology (22/23), mineral and vitamin analysis (16/23), and immunologic testing (14/23). Approximately one-quarter offered drug testing and endocrine tests (6/23 for each).

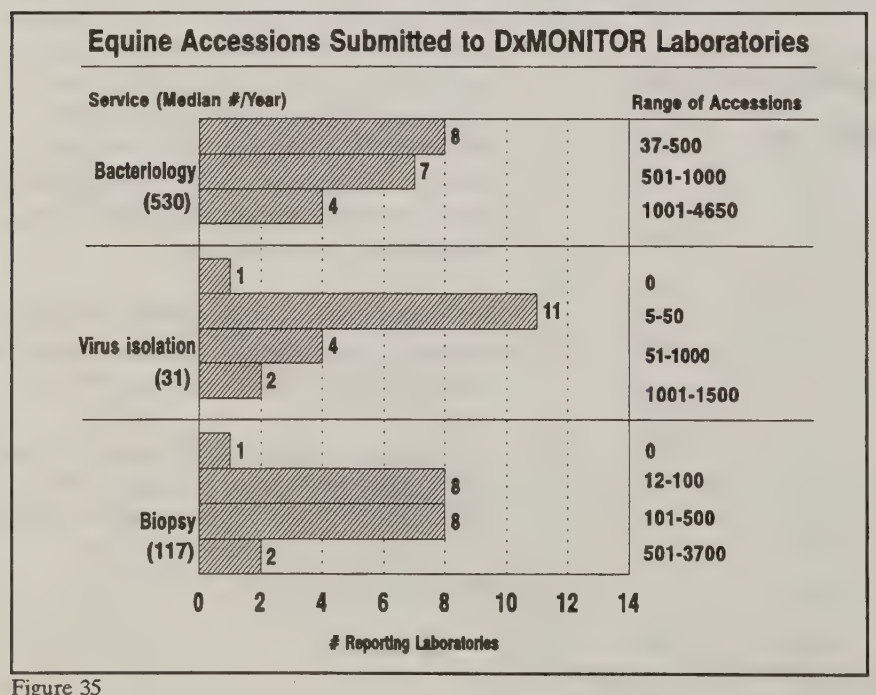


Figure 35

Eighteen of the 23 laboratories performed services on samples originating from out of State. All 18 recorded the State of origin of the accession.

Rendering was the most common method of disposing of equine carcasses (20/23), although three laboratories disposed of equine carcasses primarily by incineration. A law regarding disposal of equine carcasses existed in the State where 17 of the 23 laboratories were located.

Three laboratories did not charge a fee to perform equine necropsies. The median for the average charge was $35.00 with a range of $0 to $179.00 (Figure 36). Nine of the 20 laboratories reported a charge for equine necropsy of less than $35.00, and three laboratories averaged a cost of over $100.00.

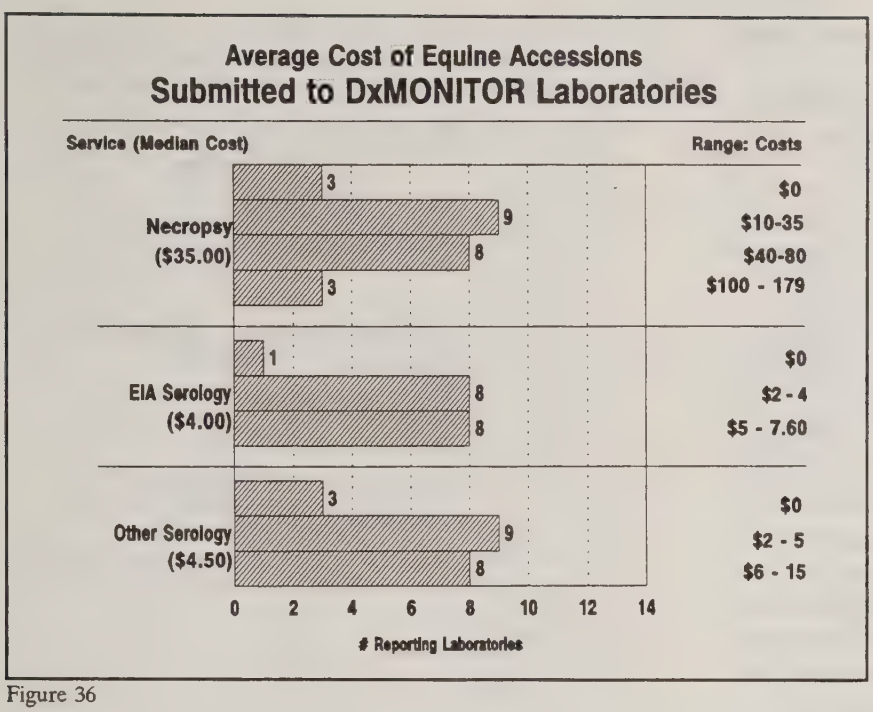


Figure 36

- The range of charges for serology for EIA was \$0 to \$7.60, with a median of \$4.00 (Figure 36).

- The cost range for serology exclusive of that for equine infectious anemia was \$0 to \$15.00 with a median of \$4.50 (Figure 36).

-Nineteen laboratories indicated they charged for bacteriologic culture. The median for the average charge for bacteriology was \$10.00 with a range of \$0 to \$30.00 (Figure 37).

-Twenty laboratories reported charges from \$0 to \$35.00 for virus isolation with a median of \$10.00 (Figure 37).

-The cost range for biopsies was from \$0 to \$20.00 with a median of \$14.00 (Figure 37).

Twelve of the 23 respondents felt that equine accessions to the laboratory represented the health of the equine population in their State. Reasons given by those laboratories which reported the equine accessions to the laboratory did not represent the equine health and disease in their State included: the laboratory was located far from the horse population in the State (4), the services provided by the laboratory were not those requested by the horse industry (1), lack of expertise in equine diagnostics in the laboratory (2), and limited contact between the laboratory and the horse industry (7). Other reasons listed included that there were few equine practitioners in the area (1), the university veterinary laboratory did more equine work (2), the horse owners were unwilling to pay for the services (1), and tradition (1).

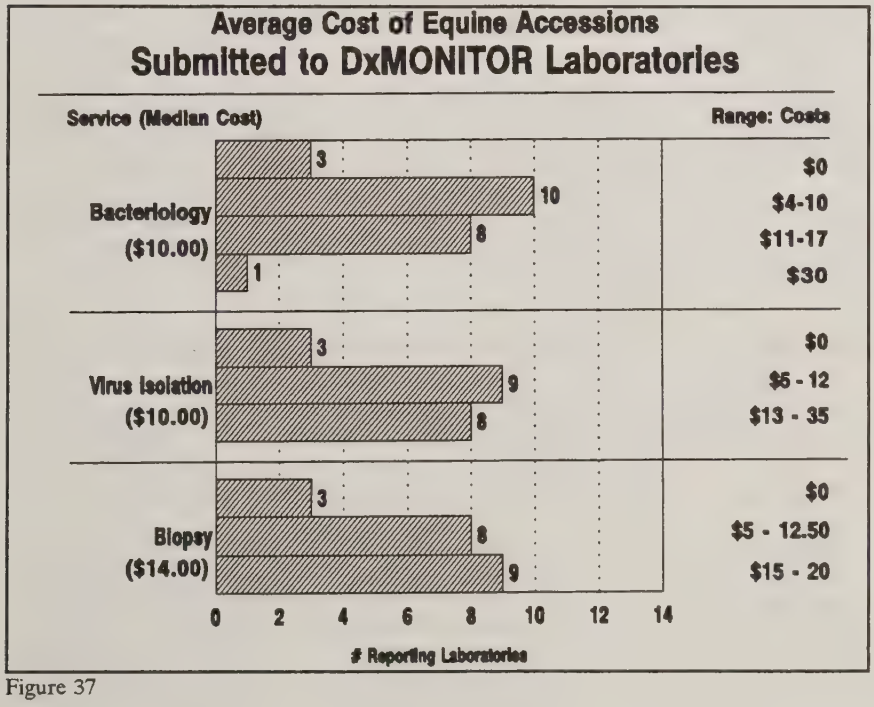


Figure 37

Fourteen of 19 laboratories felt there should be quarterly monitoring of equine diseases based on accessions to diagnostic laboratories. Reasons for monitoring were most often regulatory and zoonotic considerations. Also mentioned were: detection of changes in disease occurrence, to learn more about the disease's epidemiology, frequently occurring disease, or the test is requested.

Respondents indicated that equine infectious anemia and viral encephalitis were the most important targets for quarterly monitoring. Other frequently mentioned diseases/conditions for quarterly monitoring included salmonellosis, abortion, equine viral arteritis, leptospirosis, streptococcal infections, Potomac horse fever, and rabies.

Free Data Submission Software Available

The DxMONITOR Data Submission System (DDSS) is available free of charge to any laboratory interested in participating in the Veterinary Diagnostic Laboratory Reporting System (VDLRS).

To use the DDSS, data must first be captured by a laboratory in whatever manner works best for that particular laboratory. The summary totals of those data are then entered into a data entry screen which is provided as part of the DDSS. A computer file is automatically created for use in transferring the data. A reference guide leads the user through this process. Because the system was written within a software package called "Epi Info," a copy of this program and a user's guide are also included. Epi Info was developed by the Centers for Disease Control and the World Health Organization. It has many capabilities including data analysis, word processing, statistics, etc. Please contact the address on the inside front cover of this issue for more information about the DDSS.

Lab Notes and DxNEWS Article Submissions are Encouraged

Readers of the DxMONITOR Animal Health Report are encouraged to submit items suitable for the "Lab Notes" and the "DxNEWS." All articles should be typed double spaced. Photos/artwork should be camera ready copy. If possible, please provide your article on diskette and indicate what type of software was used to create/store the file (i.e., WordPerfect, Word Star). Send submissions to the address on the inside front cover of this issue.

Materials available from the VDLRS are listed below. Send this clip-out order form to:

Veterinary Diagnostic Laboratory
Reporting System
USDA:APHIS:VS
555 South Howes, Suite 200
Fort Collins, CO 80521-2586

Quantity

____ **DxMONITOR Animal Health Report*** *(Quarterly report of VDLRS data)*

____ **Introduction to the VDLRS** *(An informational brochure)*

____ **Report of the 1991 DxMONITOR Committee Meeting** (August 1991)

* The most recent issue of the DxMONITOR will be sent. If you want past issues, please call (303) 490-7800.

Name:_____

Affiliation:_____

Street:_____

City/State:_____ ZIP:_____

☐ Please add my name to the mailing list for the DxMONITOR Animal Health Report.

Appendix

This section provides tables displaying the most recently reported diagnostic laboratory data.

Key to Tables in this Section:

- Data are presented by laboratory of specimen origin and quarter of specimen submission. Because individuals within a State may utilize outside laboratories in addition to their own, the State numbers presented in the State maps may not agree with the numbers presented by reporting laboratory in the appendix.
- Values represent the number of positive tests or accessions (P) and the number of tests performed or accessions tested (T).
- Values reported in the "TOT" category represent all tests performed during the quarter This category may include some tests for which a month of specimen submission was not known. Therefore, the sum of the quarterly values may not be equal to the "TOT" values.
- Data totals (positives and total tests) shown for "All Calves" include specimens of unknown bovine class and those from veal calves, in addition to specimens from beef or dairy calves. Thus, the sums of dairy calf totals and beef calf totals do not always equal the totals shown for all calves.
- Values reported for all diagnoses/agents are for quarters in 1993 and 1994.
- In some cases, the reported total number of tests performed is a minimum because some laboratories were not able to determine the total number of negative tests performed.
- Abbreviations for laboratories used in the tables are:

ARVDL = Arkansas	CAVDL = California	COVDL=Colorado	FLVDL = Florida
GAATH = GA, Athens	GATFT = GA, Tifton	IAVDL = Iowa	INVDL = Indiana
KYMSU = KY, Hopkinsville	KYVDL = KY, Lexington	MNDVL = Minnesota	MOVDL = Missouri
NDVDL = North Dakota	NEVDL = Nebraska	NMVDL = New Mexico	NVSL = National
NYVDL = New York	OHVDL = Ohio	OKVDL = Oklahoma	ORVDL = Oregon
PAVL = TX, Austin	PRVDL = Puerto Rico	SCVDL = South Carolina	SDVDL = South Dakota
TNVDL = Tennessee	TXVDL - TX, College Sta.	VAVDL = Virginia	WIVDL = Wisconsin
WYVDL = Wyoming			

Appendix

Bovine Leukosis Virus

		Beef					Dairy					Total				
		|---- Quarter ---- |					|---- Quarter ---- |				|---- Quarter ---- |			
Lab		4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT
CAVDL	P	2	21	10	0	33	175	114	83	209	581	178	144	93	234	649
	T	32	43	15	20	110	626	546	319	562	2053	667	609	334	672	2282
COVDL	P				0	0				43	43				47	47
	T				6	6				145	145				191	191
FLVDL	P	9	0	14	4	27	133	14	28	15	190	142	14	42	19	217
	T	153	39	108	35	335	273	23	65	26	387	426	62	173	61	722
GAATH	P											15	44	98	14	171
	T											32	74	202	52	360
GATFT	P											43	119	89	76	327
	T											105	264	321	194	884
INVDL	P	20	17	28	32	97		19		12	31	20	36	28	44	128
	T	41	37	65	58	201		38		23	61	41	75	65	81	262
KYMSU	P											78	77	35	56	246
	T											188	197	240	119	744
KYVDL	P	37	12		9	58	107	19		164	290	150	34		182	366
	T	237	70		33	340	287	38		254	579	538	141		320	999
MNVDL	P											115	119	71		305
	T											362	314	271		947
MOVDL	P											22	45	42	38	147
	T											44	68	71	69	252
NDVDL	P											13	44	17	28	102
	T											49	133	53	62	297
NMVDL	P	0				0	0				0	0	0	1	0	1
	T	0				0	0				0	0	0	2	2	4
NVSL	P											0	0	2	1	3
	T											33	6	27	24	90
NYVDL	P											842	351	333	616	2142
	T											4601	2276	3112	2779	12768
OHVDL	P											280	626	505	490	1901
	T											1584	3217	2855	2190	9846
OKVDL	P	42	25	15	9	91	24	15	9	72	120	82	91	39	94	306
	T	85	69	46	23	223	29	25	16	96	166	142	258	98	140	638
SDVDL	P												223		158	381
	T												852		892	1744
TNVDL	P											277	140	199	115	731
	T											525	331	638	310	1804
TXVDL	P											322	37	322	270	951
	T											1888	530	2924	3414	8756
VAVDL	P	13	27	75	10	125	26	2	2	0	30	39	29	77	10	155
	T	123	60	515	53	751	100	8	3	4	115	223	68	518	57	866

Paratuberculosis by Culture, Histopathology, or DNA Probe

		Bovine					Ovine					Caprine				
		|---- Quarter ---- |					|---- Quarter ---- |				|---- Quarter ---- |			
Lab		3/93	4/93	1/94	2/94	TOT	3/93	4/93	1/94	2/94	TOT	3/93	4/93	1/94	2/94	TOT
CAVDL	P	2	3	5	1	11		0			0		1			1
	T	113	16	114	9	252		1			1		5			5
COVDL	P				1	1										
	T				167	167										
FLVDL	P	18	17	37	37	109						1		0	1	2
	T	45	32	85	67	229						2		0	7	9
GATFT	P	0				0										
	T	3				3										
INVDL	P		3			3										
	T		3			3										
KYMSU	P	16	29	32		77										
	T	57	82	72		211										
KYVDL	P	7	23			30										
	T	20	60			80										
MNVDL	P	21	56	28	15	120	0		0		0	1				1
	T	181	121	100	50	452	1		1		2	1				1
MOVDL	P		5	40	9	54										
	T		54	44	30	128										
NDVDL	P	9	1	1	2	13						1				1
	T	9	36	1	2	48						1				1
NVSL	P	6	1	5	6	18						0		0	0	0
	T	24	4	13	11	52						2		1	1	4
NYVDL	P	69	114	103	107	393	1	0	0		1	1	0	0	1	2
	T	422	924	1304	767	3417	5	6	2		13	1	10	18	11	40
OHVDL	P	65	56	65	95	281	0	0	0	0	0	4	0	0	3	7
	T	707	481	1038	1180	3406	3	1	3	4	11	17	3	29	8	57
SDVDL	P	7	17		11	35	0			0	0					
	T	18	38		48	104	1			1	2					
VAVDL	P		1	1	5	7										
	T		5	5	8	18										
WIVDL	P	56	45	60	57	218							0		0	0
	T	391	911	315	461	2078							1		11	12

M. paratuberculosis by Serology

		Bovine					Ovine					Caprine				
		|---- Quarter ---- |					|---- Quarter ---- |				|---- Quarter ---- |			
Lab		4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT
CAVDL	P	26	9	13	12	60	0	0	3	1	4	3	1	2	0	6
	T	188	71	154	63	476	2	4	50	30	86	11	3	8	25	47
GAATH	P	9	4	5	4	22										
	T	30	20	33	23	106										
GATFT	P	6	4	2	6	18										
	T	36	23	17	17	93										
INVDL	P	4	8	15	10	37						0			0	0
	T	30	31	61	47	169						3			1	4
KYMSU	P			27		27										
	T			54		54										
KYVDL	P	22	6			28										
	T	248	253			501										
MNVDL	P	60	71	92		223										
	T	181	174	221		576										
NDVDL	P	155	25	9	21	210										
	T	828	287	59	102	1276										
NMVDL	P		0	3	0	3										
	T		0	9	0	9										
NYVDL	P	79	57	78	104	318	11	0	2	7	20	3	16	4	2	25
	T	647	357	195	279	1478	175	4	4	27	210	136	165	72	31	404
OHVDL	P	24	31	180	172	407										
	T	631	538	1802	2122	5093										
OKVDL	P	4	11	3	6	24									1	1
	T	24	49	51	39	163									24	24
PAVL	P	6	7	71	39	123	4	1	3	3	11	24	18	42	158	242
	T	73	15	281	231	600	139	2	59	67	267	256	373	981	1944	3554
TNVDL	P	25	13	10	12	60										
	T	277	240	166	205	888										
VAVDL	P	27	36	24	16	103										
	T	71	90	117	59	337										
WIVDL	P	216	230	256	211	913		0	4	0	4	3	2	1	5	11
	T	442	461	536	436	1875		5	7	1	13	6	7	1	11	25

Equine Viral Arteritis

Lab		4/93	1/94	2/94	3/94	TOT
		|------- Quarter ------- |				
CAVDL	P	4	14	4	17	39
	T	348	380	323	261	1312
COVDL	P				4	4
	T				39	39
FLVDL	P	33	18	22	10	83
	T	2251	2347	1238	2268	8104
GAATH	P	3	0	0	2	5
	T	19	42	21	45	127
GATFT	P	0	0	0	1	1
	T	8	14	13	34	69
KYVDL	P	133	56		126	315
	T	1922	957		5950	8829
NMVDL	P	0	0	0	0	0
	T	9	1	0	4	14
NVSL	P	4	8	14	1	27
	T	197	156	124	150	627
NYVDL	P	47	28	10	28	113
	T	545	443	304	732	2024
VAVDL	P	0	0	0		0
	T	22	14	21		57

Porcine Reproductive and Respiratory Syndrome Virus
Indirect Fluorescent Antibody

Lab		4/93	1/94	2/94	3/94	TOT
		|------- Quarter ------- |				
CAVDL	P	3	23	3	2	31
	T	8	31	3	12	54
GAATH	P	15	106	118	153	392
	T	413	684	476	544	2117
GATFT	P	3			7	10
	T	274			130	404
INVDL	P			81	90	171
	T			134	172	306
MNVDL	P	1236	3149	2454		6839
	T	4775	9734	10516		25025
MOVDL	P	23	18	11	18	70
	T	40	69	53	73	235
NMVDL	P			0	0	0
	T			1	0	1
NVSL	P	130	327	732	873	2062
	T	603	933	1249	1540	4325
OHVDL	P	52	103	96	89	340
	T	396	583	736	731	2446
SDVDL	P	118	64			182
	T	677	1517			2194
WIVDL	P			5	0	5
	T			105	108	213

Porcine Reproductive and Respiratory Syndrome Virus
Virus Isolation

Lab		4/93	1/94	2/94	3/94	TOT
		|------- Quarter ------- |				
INVDL	P	13	70	32	44	159
	T	69	212	107	153	541
MNVDL	P	65	53	20		138
	T	801	515	388		1704
NMVDL	P			0	0	0
	T			0	0	0
SDVDL	P				17	17
	T				27	27

Neospora spp.

		Beef					Dairy					Total				
		|---- Quarter ---- |					|---- Quarter ---- |				|---- Quarter ---- |			
Lab		4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT
CAVDL	P	2	0	0	0	2	18	18	12	17	65	22	18	12	22	74
	T	25	22	7	57	111	65	69	41	71	246	99	99	51	146	395
COVDL	P				0	0				0	0				0	0
	T				1	1				12	12				13	13
MNVDL	P	1	1	0		2	5	8	8		21	6	10	8		24
	T	8	31	12		51	113	107	107		327	135	150	126		411
MOVDL	P													1		1
	T													1		1
NDVDL	P											5	1	1	2	9
	T											35	155	23	19	232
NYVDL	P											0	2			2
	T											13	17			30
OHVDL	P											1	0	1	0	2
	T											25	31	34	23	113
SDVDL	P														7	7
	T														71	71
VAVDL	P								2		2			2		2
	T								3		3			3		3
WIVDL	P											9	1	4	24	38
	T											99	60	55	103	317

The DxMONITOR Animal Health Report is distributed quarterly as part of the Veterinary Diagnostic Laboratory Reporting System (VDLRS). The VDLRS is a cooperative effort of the American Association of Veterinary Laboratory Diagnosticians (AAVLD), the United States Animal Health Association (USAHA), and the United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA:APHIS). The purpose of the DxMONITOR is to report trends of confirmed disease diagnoses and animal health data collected from veterinary diagnostic laboratories and the USDA:APHIS.

Caution should be taken when extrapolating information reported in the DxMONITOR due to the inherent biases of submitted specimens. Trends should be interpreted with care. An increase in the number of positive tests for a given diagnosis/agent may be the result of a true increase in prevalence, or, it may only reflect a new State testing requirement, a heightened awareness of the condition, or an increase in the number of laboratories reporting data.

New for this issue: The disease reporting period for new data was July 1 through September 30, 1994. Data have been reported by 29 diagnostic laboratories in the States indicated on the inside front cover (two on hiatus), the National Veterinary Services Laboratories (NVSL), and the APHIS:Veterinary Services program staffs.

Test results are presented as the number positive over the total number tested per State on U.S. maps for the current and previous quarter; and the ratio of the current quarter's positive compared to the average positive for the previous four quarters, by region, plotted on a log base 2 scale. Laboratory reported diseases in Section I are reported as tests. Diseases in Section II are reported as accessions. Increases may be a reflection of the addition of new laboratories and/or laboratories reporting additional diseases not previously reported.

Send all correspondence and address changes to:

USDA:APHIS:VS
DxMONITOR Animal Health Report
555 South Howes, Suite 200
Fort Collins, CO 80521-2586
(303) 490-7800
Internet
DXMONITOR@aphis.usda.gov

USDA:APHIS:VS
Centers for Epidemiology and
Animal Health
DxMONITOR
555 South Howes, Suite 200
Fort Collins, CO 80521-2586

AHI33.12/94